

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal).  
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### SECTION V.

If the foot of a brick lining is simply of the same thickness as the lining itself, the whole weight of the lining is thrown on a ring surface of rock (the foundation) of the breadth of the lining. This weight might be so great as to cause the rock beneath to crumble or split, so that portions of the foundation might be broken off, and the brickwork of the lower part of the shaft would loosen, and endanger the safety of the whole of the brickwork lining. By doubling the bearing surface for the foot of the wall the pressure per unit of area is reduced to one-half, and consequently the liability of injury to the foot or foundation is likewise diminished. Again, the conical surface of the lower part of the foot, besides increasing the bearing surface, transfers part of the vertical pressure into a side pressure at right angles to the conical foundation surface. In consequence of the sideward direction of the pressure it is supported by the ground, the resistance of which in the direction at right angles to the conical surface of the foot is practically infinite. The conical form has the other advantage, that the foot will tend to hold any of the loose pieces near the edge of the rock together, and so to preserve the ground in the vicinity of the foot intact. Another mode of avoiding the risk of portions of the ground near the foot of the wall (foundation) from becoming broken off is to build or line the shaft immediately below the brick walling with solid crib timbering. At the same time it is usual to form the foot of the wall in such a manner that a section of the wall shows the brick ring courses gradually less in diameter, in a stepwise fashion, so that although the vertical pressure remains the same the arrangement is such as to prevent any liability of the ground breaking off at the foot, the greater part of the pressure coming on the ledges, which are prevented by the lower rings of brickwork from breaking off. The rock itself will require dressing, and it will be well to wedge tight the space between the brick and the rock, a much stabler foundation for the footwall will then be obtained.

Where the lining is of considerable length, and therefore of great weight, it is desirable to relieve the foot and foundation of part of the weight. This is effected as follows. At suitable places (from 25 to 30 yards apart), and in suitable beds, a series of inclined ledges, or open spaces, double conical in vertical section, are cut, and the lower portion properly dressed. Sometimes a flat footing is obtained by laying wood, or small slabs of stone, on the inclined portion. The lining whenever it reaches such a recessed opening is enlarged, in a manner somewhat similar to the enlargement of the lining forming the foot of the lining (in section a double truncated cone). This enlargement of the lining is carefully wedged and made tight against the sides of the rock, so that part of the weight of the wall is carried by this enlargement, the vertical direction of the pressure being transmitted sideways against the solid ground. In this manner the foot of the wall can be relieved of a considerable pressure.

For various reasons it may be impossible, or undesirable, to form the foundation for the lining in the manner described, and recourse is then generally had to so called "bearing arches." In rectangular shafts two arches are first thrown across the shorter sides, the abutments of the arch being prepared on the longer sides. Afterwards the longer arches are thrown across parallel to the longer sides. Generally the smaller arches form the abutment for the longer ones, though the latter are then built close against the solid side of the rock. In other cases the longer arches, whilst resting upon the shorter cross arches, are abutted against the rock. The rise of these arches varies between 2 and 2½ ins. per 1 ft. of span. The arches are built up at the sides level with the crown, so that the four arches when complete form on the upper side a suitable horizontal rectangular surface for the foundation on which the lining of the shaft is built. The strength of the arches generally varies between 30 and 40 ins. in thickness; it is dependent somewhat on the probable pressure on the foundation. According to Jicinsky, the above arrangement of arches is intended chiefly to secure the ground in the neighbourhood of the foot of the lining, which is built as above described, and consequently the arches have to carry but little of the weight of the lining. By many persons the bearings or enlargements of the lining as we have described for taking off part of the weight of the lining from the foundation are considered a doubtful advantage. In Saxony in the case of rectangular shafts arches, similar to the bearing arches above mentioned, are inserted every 18 ft. to 21 ft. in the walling of the four sides. Where the arches can be abutted against solid rock this method is a very advantageous one. The advantages of the "span courses"—courses of bricks placed upright on end at every 5 ft. to 6 ft.—are not so apparent.

After the foundation has been properly built up the building of the lining on the horizontal top of the foot is commenced. In the case of circular shafts, especially when correspondingly moulded bricks are used, and the pressure slight, the lining is only made one brick thick; for greater pressures one brick and a half is the general thickness; it is in rare cases that the thickness of two bricks is employed. In the case of rectangular shafts the sides of the shaft usually form four concave surfaces; the form of the exterior is sometimes rectangular, and sometimes curved to suit the inner sides. In the first case the excavation is at once enlarged to the form and dimensions of the exterior of the lining. In the latter case the shaft is sunk rectangular in section, of such dimensions that the corners of the rectangle correspond to the corners of the lining, the concavity in the sides of the excavation being formed during the building of the lining. Templates are made use of for the curve of the inside of the lining. The curve of the sides gives a rise of from ½ in. to 1½ in. per 1 ft. of span. The joints of the brickwork are all placed radially; the junction of two sides (corner) is formed in a zig-zag line, the connection being stronger than if the joints formed one plane surface; the bricks of two adjoining courses break joint with each other, the corner joints being toothed into each other.

During the building of the lining any empty spaces behind the brickwork are carefully filled up, and all timbering is removed as the lining approaches it.

SECTIONAL WALLING.—This method of walling, which is very common in England, Belgium, North France, and Germany, is used for shafts of all sections, and is resorted to where the ground is of such an untrustworthy character that only a comparatively short length can be sunk without requiring support, and where to sink the shaft at once to the whole depth before walling would require timbering of considerable strength. Indeed, in this country one of the principal reasons for using this method is to avoid the expense of timbering. In the case where the ground is of a very loose character, so that timbering is required, this method is also resorted to, since the timbering need not be of such an expensive character as if the shaft were first sunk the total depth. This method consists in first sinking the shaft to a depth such that the ground will stand without any support till the brick lining is put in. After this portion of the line is completed, the shaft is again sunk as far as it will stand without any support, and again built up to the underside of the first lining. The repetition of sinking and walling is continued in this manner until the total depth has been reached. The depth which can be sunk at one time before walling is dependent on the nature of the ground. The greater the length which can at any one time be sunk so much the cheaper and quicker will the work be accomplished. The chief aim, therefore, in this mode

of walling shafts is to secure each set of lining until the next set can be built up to it.

The following is a description of this method as generally carried out in this country, where circular pits are almost universal in coal mines. The shafts are sunk from the surface to a depth depending partly on the nature of the ground as to what length can be securely excavated without any other support than a temporary wooden lining of prop crib timbering; and partly on the presence of suitable beds, in which the foundation of the first set of lining can be inserted. When such a bed has been reached at a proper depth a bed is carefully dressed, on which a curb of wood or iron is placed. The segments when of wood are made of half the thickness of the curb, and when placed together are made to lap, or break joint, with each other. On this crib the brickwork is built up, the temporary timbering being gradually removed, the lowest crib of the timbering being spragg'd from the top of the walling. The length of the sprags necessary will diminish by the thickness of a brick as each course is put on. When the brickwork has thus been carried to the surface the excavation of the shaft is again proceeded with, but at first with narrower dimensions, gradually widening out, however, again to the full width of the shaft, when the sinking is carried to a depth dependant on the same considerations. Here a second curb or crib is laid, and the walling again built upwards to the contraction beneath the previous foundation. Only a small portion of the foundation is removed at a time (and in diagonally opposite portions at the same time), in which places the brickwork is carried up to form a junction with the brickwork above. This is best done by removing a narrow width of ground on two opposite sides at the same time, and in the two spaces thus excavated building up the brickwork to the underside of the set above. In this manner the whole of the contraction of the pit sides is removed, and replaced by masonry, during which not more than one-eighth of the foundation should be removed at one time, thus completing the shaft in one continuous lining.

In many cases there is no bed of rock in the ground passed through, which is sufficiently compact and strong to serve as a foundation on which the brickwork can be built up, and recourse must then be had to some other method of supporting the cribs. This is most usually accomplished in the following manner:—From six to eight long wooden bars are placed radially on the surface, and systematically disposed around the shaft. The innermost ends are made to project slightly beyond the interior diameter of the shaft towards the shaft centre. The other ends are suitably loaded and held firm by piling the debris around the mouth of the shaft upon them, and building the brick lining of the shaft above and upon them to the level of the pit's bank. The shaft is excavated and lined as far as possible in the usual manner. When the shaft has advanced so far that it is necessary to line it, and a firm foundation in the rock cannot be obtained, 1-in. round bar iron is passed through holes in the ends of the wooden bars above mentioned. The iron rods are screwed at their upper end, and by means of nuts and washers are suspended from the wooden bars. According to the length of rods required a single rod suffices, or a series of rods connected by chain-shaped joints are necessary. The lower ends of the rods are bent horizontally and catch beneath the crib, which is formed in segments with overlap joints. If the crib is situated a very considerable depth below the surface it may be extremely inconvenient to have rods extending from the surface to this depth, to avoid which holes 4 ft. to 6 ft. deep or more are drilled or cut out in any suitably hard rock which may be met with beneath the surface, and in these the beams to which the supporting rods are attached are tightly driven in. Another mode of supporting the cribs even where solid rock is met with, and which allows of the shaft being sunk at once to the full diameter immediately below the crib, is that used in sinking the shafts of the Maria-Anne and Steinbank Collieries, near Bochum, in Westphalia, and which has been used in the sinking of pits in Yorkshire. A series of horizontal bore-holes are drilled in the rock immediately beneath the crib. Round iron bars are driven firmly in the holes, and on these the crib rests. To prevent the ends of the bars being bent down by the weight of the lining, chains are passed round the ends of the bars and up to the surface or some point of support in the shaft.

In the district du Centre, in Hainault, where many of the shafts are elliptical in section, and also in some of the collieries in the Mons basin with circular shafts, the lining is built up on bearing cribs, which are fixed securely in the sides of the shaft. In the first district the bearing crib consists of a rectangular frame, the ends of the longer sides being footed in holes notched in the side of the shaft. In order to complete the bearing for the foot of the lining curved pieces of wood are inserted at each of the four corners. In order to lay the courses of the lining the four corner pieces are covered with packing wood, so as to make the difference in the level between the upper surface of the rectangular frame and the curved portions at the corners equal to the thickness of a brick, or the space between the circular portions might be packed up by inserting pieces of wood up to the level of the corner pieces. In the case of circular shafts the bearing frames are formed polygonally, and only the alternate bearers hatched in the sides.

The presence of bearing cribs hatched in the sides of the rock is considered extremely disadvantageous by many, as tending to prevent a regular settling down of the lining; besides the wood in the upper part of the shaft being exposed to great changes of temperature, and of wetness and dryness, is rapidly destroyed. The wooden bearing cribs in circular shafts might be superseded by bond rings of stone curbing broader than the lining, and hatched in the walls to give additional support, were it not that in weak ground they would prevent a regular sinking of the lining. In the Dukinfield pit, which has a lining of chamfered bricks, a stone curbing of 18 by 20 in. section was put in at every 8 to 10 yards. The rings of curbing, whether of wood or stone, are generally left in. The rings of wooden curbing are extremely useful as serving to collect the water percolating through and dripping down the lining. In England the wooden curbing rings project slightly forward beyond the rest of the lining. This portion is sometimes hollowed slightly on the upper side; in other cases the water channel is formed by attaching a rim of galvanized iron to the front edge of the curb.

In Belgium the curbs on which the ring dams are formed do not project, but the first courses of brickwork immediately above the ring dam are set somewhat back, each course being built somewhat more forward than the one beneath it until the proper diameter of the shaft is obtained, when the sides are carried up vertically. The curbs are usually made of oak or teak; the great durability of iron renders its use advantageous in place of wood. The garland, or ring dam, is sometimes simply cast as a circular plate with a rim, the water channel being formed between the rim and the brickwork; in other cases the plate is cast with a gutter or U-shaped channel in place of the rim. In many cases the water passes from the ring dam down piping between the brickwork and the sides of the rock to reservoirs in small drifts cut in the rock. In other cases it is simply led by means of piping attached to the inside of the lining down into the sump. The ring dam when of iron is sometimes cast in the form of a flat plate, at other times with a box section. The following description of the sectional lining of the Scherbenberg shaft of the calamine mine New Helene near Scharlerau, in Upper Silesia, is cited in Lottner-Serlo's "Manual of Mining." The upper portion of the shaft which passes through clay is lined with a eight-sided solid crib timbering, lower down passing through compact dolomite, only loose or weak places were supported with temporary cribs backed by lagging laths. In this manner the shaft was sunk to a depth of 35 yards, when a cast-iron crib 20 ft. 6 in. in exterior, and 18 ft. 10 in. in interior diameter was inserted horizontally. The crib was made in segments with overlap joints; the lining was built upon this to the surface by means of a flying scaffold. The shaft sinking was then recommenced with a contracted diameter, and was gradually enlarged to the full diameter—22 ft.—so as to leave a ledge of rock to support the crib. At the depth of 53 yards a second cast-iron crib is laid, and the brick lining built upon this to the underside of the first crib, the ledge of rock being gradually removed in the manner we have above described. The upper brick lining had in

the meantime acquired such a solidity that the first iron crib could be removed, and the upper and lower wall made continuous. In this manner the shaft was sunk to a depth of 90 yards.

### PROPOSED INTERNATIONAL EXHIBITION OF SCIENCE APPLIED TO INDUSTRY.

The great success which has attended the Exhibition at Paris just closed has led to the proposition of another somewhat similar gathering, though of a more commercial character, to be held also at Paris, from July to November, 1879, and the well-known Palace de l'Industrie, in the Champ Elysées, has been placed at the disposal of the promoters of the undertaking by the French Government. Messrs. Caspar and Co., of Great Tower-street, have been appointed agents for Great Britain, and sole agents for the United States and Canada, and offer all necessary information to intending exhibitors. The charge for space will be about 1/- per square yard, and the agency will undertake not only the requisite negotiations for the securing space, but will advise the best mode of forwarding exhibits to Paris, and have them properly fitted up on the space allotted if desired, as well as bringing the exhibitors' claims to awards before the jury, and, when requested, will further provide the necessary attendance at the stalls for the sale of goods or patents, as the case may be.

It is proposed to arrange the exhibits into eleven groups, and the prizes will consist of diplomas of honour, diplomas of gold medals, diplomas of silver gilt medals, diplomas of silver medals, diplomas of bronze medals, and honourable mention. The executive of the Exhibition, on the requisition of the jury, will cause medals to be struck for such of the exhibitors as think proper to pay for them. The first group is devoted to pre-historic knowledge, and embraces anthropology, sociology, education, and the instruction of mankind; primitive industries, specimens of current industry and church plant; costumes, instruments, and ornaments will come within this group. The group of applied physics follows next, and embraces applications of electricity, electric telegraphs, electro-metallurgy, optical, and other scientific instruments, photography, production of heat and cold, lighting and ventilation, and so on. Applied chemistry forms the third group, and includes pottery, perfumery, wall papers, india-rubber, and preserved provisions. The fourth group is devoted to mechanics applied to various industries, and includes voting and writing machines, cabinet making machinery, goldsmiths' work and watch making, boots and hats, buttons and feathers, fishing tackle, materials connected with the working of mines and metallurgy, industrial utilisation of metals, preventing incrustation of boilers, fire arms and projectiles, and so on. Mechanics applied to locomotion on land, on water, and in the air form the fifth group, which is divided into six classes; whilst the sixth group—applied natural sciences—is divided into 15 classes; and the seventh group—mathematical, astronomical and meteorological science—includes five classes.

The eighth group—applied geology and paleontology—will be an interesting one to many readers of the *Mining Journal*; it is divided into five classes, embracing geology applied to agriculture, geology applied to industry, fuel, &c., which includes artesian wells, specimens of diamonds and precious stones, and geological and paleontological collections. The ninth group contains two classes, the one including books, pamphlets, manuscripts, drawings, &c., and the other will be made up as the Exhibition proceeds, and will take the form of an Exhibition catechism. A series of questions bearing upon the different problems of the sciences applied to industry, of recent applications and propositions, and also a certain number of questions interesting to commerce and industry, will be addressed to every exhibitor, and every answer will be examined by the Catechism Committee and inserted either in extenso or in abstract in a special catalogue.

The tenth group is made up of the special exhibits of the promoters of the Exhibition, and consists of the model of a glacier about 10 metres high, with an internal grotto, wherein will be figured the different terrestrial formations, and the fossils met with in each of them; a large scale model of a pre-historic habitation, a habitation of modern savages, and a model house of the present day, in which hygiene, comfort, and luxury have been attended to; a relief map of Europe at the tertiary epoch; and large dioramic views of Paris before the creation of man and during the cave period. The eleventh group is reserved for perishable exhibits, such as flowers, fruits, and vegetables. The progress made with the project will be duly reported as soon as sufficient time has elapsed to enable intending exhibitors to apply for space.

### THE MINERAL RESOURCES OF THE TRANSVAAL.

Amongst the more attractive mineral districts of the Transvaal noticed in the *Mining Journal* a few weeks since, Marico was mentioned as one where successful operations had already been commenced, and of the lead mines of that place a correspondent now writes somewhat more in detail. Of the lead mines more particularly he can, he says, write more explicitly, having explored the few cuttings and shafts whence the silver impregnated lead is extracted. The galena is taken out of the side of one of a number of kopjes stretching on one side of the valley, many of them of much the same conformation, and with identically similar outcropping of rock. The mine is worked in three terraces, white at the base a cutting has been driven in horizontally for a distance of nearly 60 yards—probably a fourth of the diameter of the kopje. On the terraces several vertical shafts have been cut, but it seems that huge masses of ore are to be seen so near to the surface—even at a depth of 6 ft.—that subterranean workings are no longer desirable or necessary, and in future the mine will—at all events until a vein is struck—be worked down bodily. In some of the 4-ft. shafts enormous blocks of lead are seen shining and gleaming overhead—some he saw must have weighed 600 or 700 lb. each, seemingly pure metal. On all sides the ore protrudes through the surrounding rock and soil, presenting surfaces of an inch to several feet in length and breadth, but what the weight of some of the largest are cannot be estimated, as the blocks are of irregular shape. The largest yet taken out was an enormous mass of nearly pure metal weighing 6000 lbs., which when loosened from its bed had to be broken up by blasting powder. It is well known that the lead from this mine is heavily impregnated with silver, but that the percentage varies, the lowest analysis giving 29 ozs. per ton, and the highest 93 ozs. The average yield now is stated on good authority to be 63 ozs. per ton, the alloy of the precious metal increasing as a deeper level is reached.

It is to be regretted that so much silver is fired away in the lead along with the lead, which the proprietors of the lead mine now supply in tens of thousands of pounds, or even hundreds of thousands of pounds, really much below its intrinsic value, whilst the silver mixed with the metal is sold at lead value. As white labour has hitherto been almost wholly employed on the works, and a properly qualified silver smelter is difficult to obtain, and from various other causes, the proprietors have not ventured on the task of separating all the lead from the silver, though highly argentiferous metal has been extracted from the ore by a small apparatus obtained for the purpose. It is the opinion of competent judges that the lead exists in quantities in an unbroken line for a distance of two miles through the adjacent kopjes, where the true vein will probably be discovered. Indeed, one well-known engineer strongly recommends that a shaft be driven through that extent of kopjes to the site of the present workings; but that is an undertaking the expense of which will probably only be warranted when there arises a better demand for colonial produce, when the restrictions on the sale of lead are removed, native labour can be utilised, and the difficulties of transport somewhat simplified. The yield of metal from the ore of the Marico Mine is 83 per cent.—a most exceptionally high average. The largest output of smelted bars in one day was 10,000 lbs.; the daily average at present is between 3000 and 4000 lbs., as there are large quantities stored, and the demand for lead has fallen off since the restriction on the sale of ammunition has been so stringently enforced. Spite of these disadvantages, he should conjecture

\* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. von Oronneck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

that the Marico Lead Mines prove a flourishing speculation, and when he arrived there the mines and houses were nearly deserted, employers, employees, and friends having gone off to a lovely spot some two hours distant for a day's picnicing and ruralising, where he caught a glimpse of the party discussing a regular "Star and Garter" spread of refreshments.

#### MINERS' SAFETY LAMPS.

With a view to prevent the flame of the lamp being brought into contact with the external air either by being forced through the protecting wire gauze by the shock of a powder blast, or other explosion, or from being drawn through the same by the miner himself to light his pipe, or for any other purpose, as is now frequently done, thereby exposing the pit and its occupants to the most disastrous risk, Mr. E. T. Gardner, of Charing Cross, has invented a new arrangement, the chief feature of novelty in which is the employment of two metallic cylindrical cases, fitting one over the other over the ordinary metallic interceptor. Each of such cases have longitudinal rows of suitably-shaped apertures formed therein, extending up the sides thereof from the bottom to the top, and when the cases are fitted one over the other they are so arranged that such apertures are not brought opposite each other, but occur alternately, so that only the solid wall of the internal case is visible through the apertures formed in the external one.

In order to ensure the cases being respectively held in proper position he makes a slot or hollow in, or he fits any suitable contrivance to, the base of the external one, and a corresponding projection, pin, or stud, or other suitable contrivance on the base of the internal one, which fitting into such slot or hollow effectually prevents the cases altering their relative position to each other from any concussion or shock which the lamp may sustain when in use. Instead of such metallic cases being made movable they may, if preferred, either be affixed to each other or to the frame of the lamp itself in any suitable and convenient manner so as to be rendered rigid and immovable. A suitable ventilating arrangement is provided at the top of each of the metallic cases.

By the improved construction of lamp the safety of the pit is ensured, as it is impossible for the miner to draw out the flame of the lamp for any purpose whatsoever; at the same time when any sudden rush of dangerous gases occurs in the pit they cannot become ignited by contact with the flame of the lamp, which is effectually shielded by such metallic cases, as upon any such gases passing through the apertures formed in the external case they are met and reflected back by the solid metallic wall of the internal one. All risk is thus avoided of the flame of the lamp being drawn through the wire gauze by any current of inflammable air, and thus causing the disastrous effects resulting from combustion and consequent explosion. Another improvement is that it increases the illuminating power of the lamp by employing a flat instead of the ordinary circular wick, thereby obtaining double the volume of light afforded by the ordinary wick.

#### NEW AIR-COMPRESSOR AND ROCK-DRILL.

The improvements in rock-drills and air-compressing machinery which have been made since the driving of the Mont Cenis tunnel have been so numerous that it is somewhat difficult to keep full knowledge of them well in the memory, yet all interested in the subject will have retained sufficient acquaintance with the general details to be able to appreciate any important modification. During the past week there have been on view (previous to delivery to purchasers) at the engineering works of Messrs. A. Normandy, Stillwell, and Co., at Custom House Station, Victoria Docks, finished specimens of the new air-compressor and rock-drill invented by Mr. Edmund Edwards, of Southampton Buildings, and which have been very highly spoken of by the practical miners who have inspected them. That simplicity and non-liability to derangement are important features in tools of this class is generally admitted, and in both these respects Mr. Edwards certainly seems to have left little to desire; both the compressor and the drill work smoothly and well, whilst from the nature of their construction there ought to be no difficulty in putting them into the market at a price which will permit of their adoption in every mine worth working at all.

The air-compressor has practically no valves, and the compressing pistons are worked without packing. How this is done can be quickly explained. The inconvenience of valves, however ingeniously constructed, must have been felt by every user of air-compressors, and by the use of a constantly rotating four-way cock, and a pair of what may be termed trunk-engine compressing pistons, this inconvenience is entirely obviated. The whole of the working parts from which there could be any escape of air are under water, the water serving at once for packing and lubrication. The two compressing cylinders are arranged side by side, and open at their upper ends. Each cylinder is provided with a plunger, which fits as nearly air-tight as possible, but can work freely from end to end of the cylinder. These pistons, however, may be fitted, if it should be found desirable, with packing rings, or packing in the usual way. The cylinders are fixed vertically upon a suitable bed plate or foundation, and around them are arranged a cistern containing cold water, the level of which is kept, preferably, slightly above the upper edges of the cylinders, so that when the pistons are made to descend water enters the cylinders, and forms the necessary packing. Upon the same bed-plate are fixed iron frames, which carry to their upper parts bearings in which revolves a strong shaft, having fitted upon it two eccentrics fitted with straps and connecting rods, the lower ends of which are jointed to the piston in the cylinder. The connecting rods are so arranged that their length can be adjusted for the purpose of bringing the pistons to the bottom of the cylinders at each stroke, and thus reducing the waste of air or other fluid which is being compressed. Upon the revolving shaft is fixed a heavy fly-wheel and a driving pulley or wheel, by which the shaft can be driven by any convenient power, or by placing a small engine on the same bed-plate the whole compressor is made independent of any other motor.

The two eccentrics are arranged opposite to one another, so that when one piston is at the top the other is at the bottom of its stroke. Between the two cylinders there is arranged a four-way cock, fitted with a plug and having four openings, two of which (opposite to each other) open into the lower ends of the two cylinders respectively, whilst of the other two one is connected with a pipe through which the air or other elastic fluid which is to be compressed is supplied, whilst the other is connected to a pipe through which the compressed air or other fluid is delivered, and as close as possible to this last opening is arranged a valve opening outwards, but kept in its seat by a spring in order to prevent the return of the air or other fluid so delivered.

The plug of this four-way cock is connected to the revolving driving shaft, already described, by means of bevel toothed wheels and shafts, in such a manner that it is made to revolve continuously, but only makes one revolution whilst the driving shaft makes two. It is preferred to make the parts of the revolving plug which cover the openings in the four-way cock somewhat wider than the openings, so as to reduce the liability to leakage past the former, and the position of the plug is so arranged that when either piston is at the bottom of its stroke the opening into the cylinder from the four-way cock is just closed.

It will readily be understood that during the continuous rotation of the plug there is alternately established a communication between the cylinder which has performed its work of compressing and the external air and between the cylinder compressing and the receiver thus:—The driving shaft being made to revolve when one piston is at the bottom of its stroke, as described, the plug in the cock revolves at the same time, and after the piston has risen for a short distance the plug opens a communication to the inlet-pipe through which air is admitted into the cylinders. When the piston arrives at the top of its stroke the inlet opening is shut, and when the piston has descended for a short distance the passage into the delivery pipe is open and the air is compressed until its pressure is sufficient to open the valve already described, through which it is forced into delivery pipes or a reservoir until the piston has reached the bottom of its stroke, the revolving plug having then made one-half of a

complete revolution. Precisely the same series of operations takes place in the other cylinders. The rock-drill is quite as simple and effective as the compressor, and cannot be better described than by stating that practically it is the application of the principle of the so-called universal pump to a rock-drill, and that such application is in every respect satisfactory.

#### GEOLOGY OF NORTHUMBERLAND.

Assuming that many of the students of the University of Durham College of Physical Science, Newcastle-on-Tyne, intend in after life to devote themselves to the development of the mineral resources of the district, such treatises as that of Mr. G. A. Lebour\* must be invaluable, and even to those intending to work in another district it is probable that they will be more readily made master of the subject by studying in the field every detail connected with a single district, than by merely hearing a lecturer's statements as to general facts and appearances. For the use primarily of his class Mr. Lebour has prepared a general geological description of the county to which the students can be referred for leading facts, and of its great utility there can scarcely be two opinions.

The list of formations occurring in Northumberland, given as the opening chapter, forms an excellent basis for the information afterwards given. Commencing with the deposits still forming, it is shown that there are readily observable deposits of sub-recent drift, permian, upper carboniferous, lower carboniferous, and silurian formations and igneous rocks. Referring to the lie of the rocks, Mr. Lebour remarks that the general geology of Northumberland is simple in its broad features. The beds as a whole slope to the sea, so that anyone travelling from the coast to the Scottish border across the country would be always encountering older and older formations. The direction of the general dip lies between south-east and east, so the strike of the rocks runs about south-west and north-east. But if looked at more closely much of this simplicity of structure is found to be obscured. A few undulations in the strata have here and there altered their course, which has been still more largely interfered with by a few long lines of dislocations or faults. Mr. Lebour points out the main disturbances recorded by the present geological structure of Northumberland where it is best known, but it must be confessed, he adds, that several large faults in the north of the county are not yet sufficiently understood to be included in any general statement of this kind. A separate chapter is then devoted to the several formations already mentioned, and the concluding chapter contains a large quantity of materials for a palaeontology of Northumberland, the whole being rendered very complete by an admirable topographical index. The outline is altogether extremely useful, and should be carefully studied by all having any connection with the district to which it relates.

#### NOTES OF A TOUR IN AMERICA.

A holiday tour made over a route traversed for the first time and presenting scenes and customs with which the tourist is entirely unfamiliar creates an impression which is never felt in visiting well-known places, however charming or interesting these may be, and the notes of such a trip, when cleverly written form as attractive and amusing a narrative as can be desired. It was determined at the close of the last parliamentary session by the Right Hon. Hugh and Miss Childers, and Mr. and Mrs. H. Hussey Vivian to pay a visit to America, and Mr. Vivian has published his notes by the way† in the form of a volume which should command a large sale for its readable and interesting value, and the more so because it has been printed at cost price by the proprietor of the Cambrian, and all profit arising from its sale is to go in aid of the building fund of St. John's Church, Swansea, a parish without a church, but with nearly 5000 inhabitants, in whose welfare the author is deeply interested. The narrative commences with the departure from Swansea, and traces the progress of the party through Liverpool, and by way of the Allan liner Caspian to Queenstown, St. John's Newfoundland, to Halifax, Nova Scotia, which city does not appear to have created a very favourable impression. Although the position of Halifax is, he says, most commanding when viewed from a distance, there is nothing of interest in the town itself. The main streets necessarily run along the steep hill side on which it is built, but they are in the last degree dirty and ill-kept; the pavements partly wooden and partly stone are irregular, and frequently altogether absent, while the roads are deep in mud, the houses are ill-built, except the most recent; the place has in fact no attractions *per se*, but its surroundings are very charming. Perhaps the most striking feature of Halifax is he thinks its citadel, which crowns the hill, along the face of which the town is built, and with it well kept glacis and 18-ton guns seems capable of giving a good account of any invaders; but, alas, he fears much good money must yet be spent before Halifax becomes what it ought to be—impregnable. It is now the only fortified position held by Great Britain in North America, and it may be said to command the most important position of the seaboard if in the hands of a power possessing a strong navy. As a naval station with an extensive coal field at its back it is of the first importance to England, and the necessary means should be found to place its defences in a more satisfactory condition than he found them after closer investigation to be in.

From Halifax the progress continued by way of the Intercolonial Railway, and Mr. Vivian makes a passing note on the Nova Scotian coals, remarking that the veins are thick—one is 40 feet thick, others 18 ft. and 20 ft., and adds—"The area of the coal fields in this neighbourhood were stated before the Royal Coal Commission to be 1950 square miles, while those of Great Britain are 2900 square miles, so that the coal of the Dominion of Canada may play a very important part in its future history, especially as they are on or close to its seaboard." On the Bay of Chaleurs Mr. Vivian found a colony of fishermen, for the most part the descendants of old French settlers, and still among themselves talking their old language, but at the same time speaking English without an accent; but there was one among them—Joe Young—who spoke with an unmistakable broad Cornish accent, and looked the Cornishman all over, though speaking half his time in French. He declared he was not Cornish, but on Mr. Vivian asking him where his forefathers came from he said "from Cornwall," but the word Cornish was unknown to him; his "grand grandfather" had been captain of a vessel, and had settled there 15 years before Wolfe took Quebec. The old blood and tongue had come down through three generations, and he was as typical a Cornishman as any from the Lands' End to the Tamar.

From Quebec the tour was continued by way of Saratoga, New York, Pittsburg, Sarnia, Chicago, to Salt Lake City, in connection with which there is, of course, a short sketch of Mormonism. They visited the Emma and Flagstaff Mines, and others in the district, and gives an interesting account of them. The Emma Mine, he says, is marked only by a few tumble-down wooden sheds on a very small scale, presenting no external appearance of much outlay, and he learned from a Cornishman whom he fell in with that the lode is quite cut out in the bottom. The mine was discovered by a poor miner, who sold it to Mr. Hussey, a banker at Salt Lake City, for \$110,000, or 22,000*l.*; it was put on the New York market for 300,000*l.*, and transferred to the English market for 1,000,000*l.*

The rest is well known. Mr. Vivian infers that the run together which stopped the mine was not accidental, and it seems very doubtful whether there is anything more of great value in the mine. San Francisco was next visited, and Mr. Vivian remarks that since 1848 the State of California alone has produced 329,400,000*l.* worth of gold and silver bullion, which accounts for the stability observable. Some interesting particulars are supplied with regard to the Nevada silver mines, and the concluding chapter furnishes an excellent outline of the mineral resources of America generally. The volume throughout is unusually attractive, and as it appears

the notes were prepared for publication during the tour there is no fear of errors of recording. The work will well repay perusal whether for information or amusement.

#### THE COALS OF ILLINOIS.\*

Underlying the broad prairies of the State of Illinois are stored at various depths sufficient quantities of fossil fuel to supply the various and constantly increasing wants of the population for ages to come. The coal area of the State may safely be estimated in round numbers at 35,000 square miles, an area three times as large as that of Pennsylvania or Ohio, and constituting one-fifth of the productive coal fields of the United States, not including what are termed the lignite basins of the Western territories. The coal measures attain an aggregate thickness of 1400 ft., and may be divided into upper and lower measures, the latter of which as a rule contain the better coal. The object of the present investigations is to determine the relative value of the different coals examined for heating purposes, and more especially the means of determining from the results of the analysis the particular application of the various qualities of bituminous coals of the State. A chemical analysis has been objected to as a means of determining the qualities of coal for the reason that each company being desirous of having their coal appear as well as possible, would present specimens above the general average. This objection is done away with by requiring from each mine a vertical section of the entire vein, or specimen of coal taken from the top, middle, and bottom of the vein.

Taking Prof. Weber's analysis of the Youghiougheny coal of Pennsylvania, and the Briar Hill coal of Ohio, both celebrated gas-producing coals, Mr. Rudy shows by following exactly the same system of analysis with the Illinois coal, and thus comparing it with the Youghiougheny coal and with pure charcoal, that although the calorific power is on the average 20 per cent. lower, the Illinois coal is a thoroughly good coal, is equally free from sulphur, and has but little more ash. The cause of the low heating power of the Illinois coal appears to be due to the large quantity of oxygen present, which is always double, and sometimes nearly three times, that in Youghiougheny coal. As a chemical investigation showing the relative value of the coals of Illinois for heating, manufacture of iron, gas, &c., the thesis is admirable; it reflects great credit upon the writer, and gives good promise that in the future he will be well able to hold his own amongst his fellow graduates of the class of '78.

#### THE PRESENT STATE OF ELECTRIC LIGHTING.

Although most persons are quite ready to express their opinion with the utmost confidence as to the probability or improbability of the use of the electric light becoming general for ordinary purposes of illumination, one usually finds that the speakers have given no attention whatever to the subject, and in the majority of cases they have not even troubled themselves to ascertain any of the known facts with reference to the nature and properties of electricity, or to learn what has already been done in connection with electric illumination, and what have been the causes of failure. It is beyond question that electric illumination has been more extensively applied during 1878, and some important advances have been made, but the cost of producing the light is still far too high to permit of its general application; but the success of the Jablachkoff, so far as the continuous production of a steady light is concerned, has been followed by the patenting of a vast number of contrivances which are practically identical with those which were tried and failed 20 years ago. In order to be enabled to form any thing like a useful conclusion, some knowledge of the history of the electric light is essential, and this may readily be obtained by the perusal of the interesting paper read at the recent meeting of the British Association by Mr. J. N. Shoolbred, and now reprinted in pamphlet form†, in order to serve as an introduction to a communication on the practical application of electricity to lighting purposes shortly to be made to the Society of Arts.

Electric lighting, says Mr. Shoolbred, has only attained its present development by certain marked stages of progress. Its first stage, at least of practical application, may be identified with the large cumbersome magneto-electric machines of Holmes and of the Alliance Company, producing a current alternating in direction, and supplying a single light, the sole application of which seems to have been confined to a few lighthouses. The next stage is represented in this country at least by the dynamo-electric machines of Gramme and of Siemens, which supply a much augmented current, continuous in direction to a single light, and whose application includes, besides lighthouses, the illumination of workshops and other large areas. The third and present stage is that of the divisibility of the electric light—that is, the production of a number of lights from a single source of electricity. This last stage has been arrived at likewise with dynamo-electric machines, both from those giving continuous direction currents and from those alternating in direction, but chiefly with the latter. The Jablachkoff candles, the Lontin, and also the Rapieff systems, have effected this last much-desired development in electric lighting.

The electric light was first produced at the beginning of the present century by Sir Humphry Davy by means of a powerful battery of 3000 cells; this was of course too expensive for practical application. It was not until Faraday's discovery of the induction of currents by magnets in 1831, leading to the construction of magneto-electric machines, dispensing with any battery that the production of the electric light was practically applied. Machines of this character at the suggestion of Prof. Nollet, of Brussels, were produced in about 1849 by Holmes, of London, and by the Alliance Company of Paris, their principle being that by the rapid rotation by mechanical means of an induction coil composed of copper wire wound upon a soft iron core the magnetism present in a number of permanent horse-shoe magnets ranged exteriorly around the periphery of the coil is induced into it, whence the current is utilised and led off for the production of a single electric light. Machines of this character have been employed at several lighthouses, but it is large and cumbersome (5 feet 3 in. by 4 feet 4 in. by 5 feet), and weighs about 2 tons, and cost 450*l.* Its illuminating power when it is driven at the rate of 350 to 400 revolutions per minute with more than 3 indicated horse power is about that of 2500 standard candles per hour. This class of machine has recently been applied only to provide the alternate-direction current necessary for the Jablachkoff candles when first introduced, and until Gramme had devised a suitable machine for their proper supply. A machine similar in principle has recently been designed by Mr. de Meritens; it consists of eight compound horse-shoe magnets arranged lengthwise around and resting upon two circular frames. Before the ends of these magnets is a wheel of light construction, having 16 flat-shaped coils arranged upon its periphery, the cores of each coil being composed of a number of thin wrought-iron plates. No commutator or collector is required with the machine.

A very great advance was made in the construction and efficiency of electric light machines, due to a discovery made almost simultaneously in 1867 by Wheatstone, Siemens, and Varley. If an induction coil be made to revolve in front of a soft iron electro-magnet instead of before a permanent magnet, as in the earlier machines, the small amount of residual magnetism always latent in the iron, especially if it has been once magnetised, causes feeble currents to be induced in the coil, and if these currents, or a portion of them, be sent round the iron magnet—that is, into the wire surrounding it, the magnetism of the iron is increased. This again produces a proportionate increase in the induced currents in the coil, and thus by a series of successive mutual actions intense magnetisation and very powerful currents are produced. Machines constructed on this principle of reaction (with electro-magnets) are termed dynamo-electric machines, whilst those using permanent magnets retain the old name of magneto-electric machines.

The dynamo-electric machines of the second stage produce cur-

\* "Outline of the Geology of Northumberland." By G. A. Lebour, F.G.S. &c., Lecturer in Geological Surveying in the University of Durham College of Physical Science, Newcastle-on-Tyne. Newcastle-on-Tyne: M. and M. W. Lambert. London: Sotheby and Co., Queen-street.

† "Notes of a Tour in America from August 7 to November 17, 1877." By H. HUSSEY VIVIAN, M.P., F.G.S. London: Edward Stanford, Charing Cross.

‡ "Coals of Illinois: Graduating Thesis for B.Sc., School of Chemistry, Illinois Industrial University." By WILLIAM D. RUDY, Class of 1878. Champaign: Illini Steam Print.

§ "On the Present State of Electric Lighting." By J. N. SHOOLBRED, B.A. M.I.C.E. London: Hardwicke and Bogue, Piccadilly.

rents of considerable intensity, all of which were collected upon the circumference of a circular disc termed a commutator—the Gramme and the Siemens are the best known. The Gramme is by far superior, for the Siemens with 2-horse power actual gives 1200 candles light; whilst 4-horse gives 6000, and 8-horse 14,000 candles. The Gramme machine, with 1½-horse-power gives 2000 candles; with 2½-horse 6000 candles; and with 5-horse 15,000 candles light. The dynamo-electric machines give better results, and of those known in this country the Gramme appears to be unquestionably the best. In some experiments by the Committee of the Franklin Institute, Philadelphia, recently made public, they had under comparison the Gramme medium size; the Brush, large and small; and the Wallace Farmer, large and small. Preference was finally given to the small Brush over the Gramme, which was admitted to have run it very close.

The third or present stage of electric lighting which represents the divisibility of the currents so as to produce a number of lights, has so far only been solved by the Lontin and the Jablachkoff-Gramme systems. Mr. Lontin uses two distinct machines; the first generates currents feeble in intensity, which are passed off in one continuous direction to the second or dividing machine, which after greatly augmenting their intensity permits of their being collected from off its exterior casing in a divided form, and alternating in direction. As a lamp Mr. Lontin uses the Serrin, or one of several modifications of his own, but all have the carbons working independently of each other. It appears that he has had at the Lyons Railway, Paris, 30 lights supplied with one machine. Mr. Shoolbred has evidently given the whole subject careful and minute attention, and his pamphlet at the present time, when everyone is thinking of electric illumination, will be invaluable.

#### THE ELECTRIC LIGHT.

The question of electric illumination remains much in the same position as when last reported upon; ample evidence continues to be offered that the light can be produced without difficulty for six or eight hours continuously, but no facts are forthcoming as to the cost per light or the distance to which it is effective. A practical trial of the Jablachkoff-Gramme system was made at Billingsgate Market yesterday (Friday) evening—16 lamps, each calculated to equal 1000 standard sperm candles, having been judiciously arranged so as to avoid objectionable shadows—and the brilliancy left no doubt that an enormous volume of light was being produced, although there can be no question that the use of the opalescent globes, which are acknowledged to reduce the light to a little more than one-third, places the Jablachkoff lights at considerable disadvantage, in point of brilliancy, as compared with the ground-glass globes used with the Lontin light employed in the Strand. But against this reduction of light the opalescent globes have an important compensating advantage—they absorb a large proportion of the objectionable blue rays, which render the electric light so hurtful to the eyes. The Billingsgate experiment is under the control of Mr. Thomas Rudkin, as chairman of the Markets Committee of the Corporation; and as he is a thorough man of business, the speedy publication of full and minute details of the first cost of the engine and appurtenances, of the lamps and their installation, and likewise of the actual cost, to a penny, of generating the electricity (showing the actual horse-power used from hour to hour), including the wages of every person directly or indirectly employed during one entire week (the second or third week would be the best to take, as there might be some hitch during the first week, which would place the electric lights at an unfair disadvantage) may be confidently looked for.

It is the Jablachkoff-Gramme system also which is to be used on the Thames Embankment, but it is probable the light will not be used there until the new year, for Messrs. Ransomes and Co., who have the order for the engine to drive the Gramme machine, are not required to deliver until the first week in December. The Board of Works are, however, making the necessary preparations for the trial—the main circuit is to be laid in the subway, and such of the existing lamp-posts as are required will be utilised for the Jablachkoff lamps. The lamps will be 40 yards apart, and there are to be 20 of them, so that a length of nearly half a mile will be illuminated. It will certainly occur to most practical men that in adopting this arrangement of lamps the proprietors of the Jablachkoff-Gramme system will let slip a very favourable opportunity for showing the light to the best advantage. The cost of throwing an arch of tubing across the roadway every 40 yards (or every 50 yards would be preferable), so as to suspend the lamps at 20 ft. above the centre of the roadway would not be large, and the effect would be increased enormously. The lamp could be readily reached by a small telescopic stage, mounted on a suitable carriage, and would not obstruct the roadway for more than ten minutes per lamp daily. At present much of the power of electric lamps is lost against the walls of the buildings near which they are placed, but by the arrangement mentioned every particle of light would be utilised.

The Rapieff system is a modification of that of Serrin, the carbons being brought up to each other at an angle instead of being kept in line. It differs from the Jablachkoff because machinery is used to keep the carbons in position. It has been in practical use at the Times for some time in the machinery department, and that it has given satisfaction is evident, as they are about to extend it to the composing department. Most practical men, however, would not consider the Rapieff a desirable system. A large room containing eight Walter presses is well lighted with six Rapieff lamps, and the Rapieff light is certainly very free from those fluctuations which constitute so serious a drawback to some other systems. Mr. Rapieff has shown seven lamps, with their double pairs of V points, upon stands upon a table, where they were connected with the wires, and were seen at once in action. Mr. Rapieff then proceeded to extinguish each light in rotation without any apparent effect upon the lights which still remained. Meanwhile the freedom of the lights from fluctuations was very striking, the cause of this being his mode of diminishing the resistance by only allowing the current to pass through a small part of the entire length of the carbon pencils, coupled with the perfectly accurate operation of Mr. Rapieff's contrivance for maintaining between the poles the precise distance most favourable to the development of the voltaic arc. The machinery of the Rapieff lamp is undoubtedly complicated and delicate, but it is stated that in practice no inconvenience is experienced. The generator ordinarily used is a Gramme dynamo-electric machine with alternating currents, but it is asserted that the system also permits of the use of the single current machine. It is estimated, but no steps have been taken to verify the estimate, that one-horse power is capable of maintaining a light equal to 100 gas jets, each jet equal to 12 standard candles. The carbons at present consumed cost twopence per hour, but this will, of course, be much reduced as the demand increases.

To give Mr. Edison the credit of having been the first to demonstrate the divisibility of the electric light is obviously erroneous, as Mr. Jablachkoff shows in his communication to La Correspondance Scientifique for Oct. 15, which contains many startling statements, some of which, however, are evidently written with inventor's ink, which is often very highly coloured. He remarks that—

"In the Times of Oct. 8 we read: 'The divisibility of the electric light remained still an unsolved problem; its solution was reserved for Mr. Edison.' But I have long ago effected the division of the electric light, as is proved by my communication to the Academy of Sciences, Dec. 3, 1877, and to the Physical Society of France, Feb. 1, 1878. This divisibility of the electric light has, moreover, been publicly shown, Feb. 9, 1878, at a lecture delivered by Prof. Jamin, in the Great Amphitheatre of the Sorbonne; and, what is more, the system has been at the Paris Exhibition since May 1, 1878, open to all visitors to the Champ de Mars. In view of this fact I do not think it needless to mention the calculations included in the same announcement, not in order to discuss them, but to make known my opinion on such estimates. They are of two classes. The opponents of the electric light represent it as excessively costly. Partisans and promoters, on the contrary, put forward figures which cannot be called inexact, but which are merely theoretical, and consequently scarcely capable of being justified by practice, and liable to injure the cause of the light rather than serve it. . . . Wherever the electric light has been introduced a notable saving has been effected. In the great shops of the Louvre, for instance, where this light has been in action for more than a year, the proprietors have found an economy of 30 per cent, and receive a better light. At the Theatre du Chatelet the proprietor has dispensed with 30 lbs. worth of gas every evening, and uses instead my system of electric light, which costs him only 14 lbs."

Of the Werdermann lamp nothing new has transpired, but in

connection with his system one remarkable fact was shown in the course of his experiments. He first showed two lamps supplied from one Gramme machine. These lamps were estimated to be equal to 320 candles each, and  $320 \times 2 = 640$ . The same current was then distributed through 10 lamps, which were estimated to be of 40 candles power each, although photometrically tested they would probably have been found to be nearer 20 candles each. But giving them full credit for 40, we have  $40 \times 10 = 400$ , showing that considerably more than one-third of the total lighting power is lost by the sub-division. This same diminution will probably be found with every system upon dividing the light, and should, at all events, be carefully looked for by all who regard the question of electric illumination from a commercial point of view.

#### NEWPORT ABERCARN STEAM COAL COLLIERIES.

A further important step in connection with the working of the Newport Abercarn Black Vein Steam Coal Colliery, situated in the Crumlin Valley, between Newbridge and Abercarn, has just taken place, which promises that the shareholders of the concern will soon be receiving a good return for their outlay. We have had occasion previously to refer to the progress which this new field for the production of steam coal of the very best description has lately been making, and in order to explain the present position of affairs it will be necessary to recapitulate a few particulars. The first sod of the new Abercarn (Newport) Black Vein Steam Coal Colliery was cut in May, 1873. The coal which has been reached is the celebrated 10 ft. black vein steam coal, for many years past used by the Royal Peninsula and Oriental mail steamers. In sinking for this black vein of steam coal several other seams of coal were pierced, and for the working of these seams a pit has been sunk, which will be worked when a call for this coal shall arise. From May, 1873, the operations at the colliery have been successfully carried on, and the highly valued 10 ft. vein was struck in August, 1873. Two shafts were sunk—the downcast, which was finished in December, 1877; and the upcast, which was completed in 1878. Operations for the raising of coal were commenced in January last, by which time permanent winding machinery had been erected. At present there is no intention to work other than the celebrated 10 ft. steam coal, the output of which, since the commencement of the year has been gradually up to 1000 tons per day, with two shifts of about 200 men each. Altogether there are about 550 men employed at the colliery, which number will be gradually increased as the workings become opened up. A practical test has just been given to the capacity for raising coal at this colliery. Orders were received in anticipation of large steamers arriving at Newport, and to meet the requirements the number of men above mentioned worked, brought to bank, and sent away no less than 1954 tons of coal in two shifts, the largest quantity of coal ever raised from one pit in South Wales in the same day.

The vast quantity of the most valuable of the South Wales steam coals was sent away to Newport in 298 wagons, and had it not been that the colliers were tired out, and there was no room to introduce fresh hands, the output of Wednesday might have been increased to 2200 tons. To raise this vast quantity of coal only the ordinary working machinery was put in motion. The workings of the colliery are as yet only opened up to the extent of some 300 or 400 yards underground, but as the colliery is further developed an increased number of hands will be employed, and in the course of a few months it is anticipated that the daily output will be something like 2500 tons. At present there are only single cages lifting two trams each time, but it is intended, eventually, to raise four trams at once, so that by this means, and an increase in the number of the colliers employed, at least 2000 tons will be the total daily output. These are most extraordinary statements, but they certainly appear to be verified by the class of machinery and appliances which have been provided for the new colliery. The two shafts of the pit are undoubtedly the finest that can be seen in the country, the latest scientific improvements being introduced into the arrangement and machinery. The superficial area of the down-cast shaft is 314 ft., and that of the up-cast 254 ft., the depth being 354 ft. to the on-setting platform. To lift the coal there has been erected a pair of horizontal winding-engines of 38 in. cylinder, with 6 ft. stroke, and 16 ft. drums. The framing of the pit head is of a very massive nature, and is constructed of wrought-iron work, on the lattice and box principle, 65 ft. high. The arrangements for landing and tipping the coal are very complete.

All the machinery in use since January is new, with the exception of a pumping engine, which has been erected since the first starting of the works, and was manufactured by Messrs. Harvey and Co., Hayle, Cornwall. This engine has 85 in. cylinders, with 10 ft. stroke and 22 in. force lifts. The beam is a most massive one. The pump is capable of drawing 1000 gallons per minute, but at present the quantity of water raised is only 300 gallons per minute, thus showing that there is a large reserve power for lifting water in cases of necessity. The ventilating fan in the upcast shaft, is one of the largest ever made, in fact there is only one other of the same size in South Wales. It is made by Waddle, of Llanelli, and is 45 ft. in diameter, and is capable of exhausting 300,000 cubic feet of air per minute. In consequence of the colliery being only partially developed this fan is now only required to exhaust 200,000 cubic feet per minute, so that it will be seen that the provision for ventilating the pit is most perfect. The fan makes 40 revolutions per minute, the pressure being 1-7-10 in water gauge. It is the intention of the directors to light the pit bank by electricity, and if this is found to answer the expectations of the directors, both in economy and utility, it will be further introduced for the lighting of the extensive double partings or sidings at the bottom of the pit. As we have announced, Mr. T. Thomas, the consulting engineer, recently paid a visit to some of the collieries near Liege, Belgium, for the purpose of seeing the electric light there in use, and which it is proposed to introduce into the new colliery. Should the experiment be successful the cost of lighting the underground workings will be small, and the danger of using lights will be done away with.

The company have an exceedingly fine maiden property, having leased 1200 acres, of land from Llanover for 99 years, but the property is so situated that other extensive mineral measures will, when required, be available for opening up from these same works. The prospects of the company are, indeed, excellent, and promise, notwithstanding the depression of trade, a good dividend to the shareholders, the colliery being situated only 10 miles from Newport, and the railway facilities everything that can be desired. To Mr. T. Beynon, of Newport, the managing director of the company, great credit is due for the manner in which the sale of coal from the colliery is effected. Mr. John Cory of Cardiff, is the local director, and so long as the affairs of the company are under the hands of the present directorate, together with Mr. J. T. Green, manager, and Mr. T. Thomas, Cardiff, consulting engineer, the shareholders may look for successful results.

**A LONG LIQUIDATION.**—The Tipperary Bank case is a startling comment on the delays and perils of the process of liquidation. For fully thirty years this case has been in litigation, and the officers of the Irish Court of Chancery do not remember one of earlier date. The costs on one side alone amount to 20,000*l.*; one of the witnesses was four years and a half under examination, and one of the counsel spoke for nine months consecutively, while the judge was of opinion that he did not speak longer than was necessary considering the magnitude of the questions at issue. On Thursday, on the case being opened again before the Irish Lord Chancellor, the story was taken up in 1868, when Master Litton died before making his report on the amount due by the estate of Lord Kingston of the bank trustees. Some months ago, after thirty years' litigation, the Lord Chancellor made a decree finding 40,000*l.* due to Mr. Eyre's representatives by the executors of the late Lord Kingston. The fund in court to satisfy this decree consists of sums of money secured by three policies of insurance amounting to 15,000*l.* For Lord Kingston it was contended that the money was advanced originally by the bank, and not by Eyre, and that the trustees of the bank were mortgagees in possession, and should account as such, and that there was a sum of only 12,000*l.* due. There was also an allegation of wilful default as

regards 5000*l.* by the late receiver. The Lord Chancellor said he suspected the costs would devour all the estate without touching the debt. Mr. sergeant Sherlock said the estate was worth 20,000*l.* a year, and there were 1500 tenants at small rents. The shorthand writers' fees amounted to 1200*l.* Those were good times for reporters. The Lord Chancellor: And I expect the bar too. (Laughter.) I am afraid the summary proceedings now are not of such a beneficial character. The case was then adjourned to Saturday, the 16th inst.

#### Original Correspondence.

##### RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—The vote of confidence in Mr. Probert passed at the meeting of shareholders on Tuesday by all present, with the exception of the three members of the committee, was a vindication, not only of that gentleman's past conduct and policy, but also of the board who selected him to carry out their views, and sustained him so faithfully throughout in the execution of the arduous duties he had undertaken, despite the persistent malignity of the slanders levelled at him and his chief supporters. I am responsible for inducing Mr. Probert to go out in the first instance. I only then knew him as a shareholder, criticising continuously and most severely, but most intelligently, the affairs of the company in reference to the adverse rumours in circulation. Finding that he was so well posted in mining matters, I told him in confidence the distrust I began to entertain, and my great anxiety to ascertain the truth about the property, and urged him to go out and make his own report to the board, offering to pay his expenses if he would do so. This proposal he positively declined at the time. As the first lawsuit with the Eureka Company was then pending it was decided to send out Mr. Corrigan to aid in the defence, and he having stated that he should wish to have the aid of some independent shareholder, a resolution was passed on October 30, 1872, empowering him to make a payment of 100*l.* monthly to the gentleman who should be selected to accompany him. As no suitable person could be induced to go out, at the last moment I again saw Mr. Probert and begged him to go; he then assented, and at 24 hours notice started to join the ship at Liverpool. His stay at Eureka was prolonged for many months, and it was not till Mr. Corrigan's return that the board on learning that he had not given Mr. Probert any part of "the 100*l.* per month," but had merely paid his expenses, felt it only common justice to vote him as a gratuity the sum in gross they had supposed he had been receiving.

I mention this fact because the committee, in their last report, at page 81, deliberately found a charge of misrepresentation against me, as having stated that Mr. Probert went out originally as a shareholder to judge for himself and his co-proprietors, a charge which they have attempted to substantiate by disingenuously adding to the minute in the first report the words "to him," that is Mr. Probert, whereas no reference was made to that gentleman, and he was not in question at the time, and I made no other bargain with him than that his expenses should be paid. The committee in their last brochure of Nov. 8 repeat this charge, and the equally false one that when I stated that "Mr. Probert was a large shareholder he only held 10 shares," notwithstanding that I had publicly stated at the meeting last June that I then held in my hand his letter to me at the time, which informed me that he had bought 300 shares, though they had not come in for registration.

The committee took nine months to prepare their report, and they demanded the judgment of the shareholders on it in 14 days, thus excluding all chance of reply from those they attacked.

I saw at once on its perusal that there was not a single charge or statement in it affecting the conduct of the board, or Mr. Probert depending on the documents or minutes on this side, but what from my own intimate knowledge and recollection of the real facts I could either instantly refute or satisfactorily explain.

I intended to have done this at the meeting in June, though only just recovering from the weakness induced by the recent breaking of a blood vessel, but after a few preliminary remarks, pointing out that the premises were incorrect, and the conclusions arrived at by the committee could but be erroneous, and adducing some glaring instances of inaccuracy and unfairness, I suddenly found that my voice failed me, and that I was unable to proceed with my argument, or to read the letters or documents in my hand that would have proved my case. One of those letters was the private one to me, which the committee now admit clears Mr. Probert of the charge of ignorance of the real nature of the deposit, and the proper mode of exploration to be pursued.

The committee further sought not only to proclaim this ignorance but to prove that he was perversely ignoring Mr. Rickard's more enlightened views, and obstinately thwarting them, and in witness thereof quote part of Mr. Rickard's letter to Mr. Probert, and by commencing in the middle of a sentence, and suppressing the first portion of the letter, which was the echo of Mr. Probert's instructions, convert the latter half, which was an approval and expression of intention to follow it into a demonstration of Mr. Rickard's superior knowledge, and inability to give it effect. The committee in the document issued by them in November 8 express regret at this suppression, but excuse themselves on the ground that it was desirable to keep the report within due bounds; looking at the amount of padding in that document surely space might have been found for the significant six lines left out of Mr. Rickard's epistle. Independently of the letter to me, which the committee admit exonerates Mr. Probert from the charge of ignorance as to the explorations, I assert that the whole voluminous correspondence which the committee had seen prove our thorough mastery of the existing mining facts, and demonstrate the wisdom of the policy pursued by the board—a policy determined not only by mining conditions but influenced from time to time by financial considerations, labour and fuel questions, as well as by the treacheries, and frauds, and follies to which unfortunately all enterprises of the kind in newly settled districts are exposed. Mr. Probert wrote privately to myself and Mr. Hopkins, because he knew, and I knew, the source of the leakage by which certain stock operators and our opponents in Eureka knew so much that passed at our board. I deny once more that anything was ever kept from the shareholders except in relation to pending legal questions or intended acquisitions, which it would have been suicidal to publish.

Mr. Probert is charged with initiating the refinery; it is not true. Our first manager was a professor of chemistry, and one of his first letters to me, in 1872, was on the subject of the necessity of starting refining works to escape the shameful charges imposed on us by the refining establishments. Mr. Clarence King, in his most able report, enforced the necessity of starting a refinery, and Mr. Probert did but echo the previous conclusions of all concerned.

The committee denounce Mr. Probert's defence of the refinery on the ground of its being based on the untrustworthy evidence of Messrs. Morrison and Rickard, and publish certain private letters of those gentlemen in justification of the assertion, but the committee owe it to their fellow-shareholders to explain how, with such treacherous epistles in their possession, they could trust the writers and base accusations on such tainted evidence?

One of the charges against the management in London and Eureka was based on the assumed fact that by our obstinate rejection of the use of coke we had incurred a loss of profit of over 100,000*l.* as compared with that realised by the Eureka Company, owing to their enlightened use of the superior fuel. Mr. Probert has now proved that since 1873 the Eureka Company have abjured the use of coke, and that we are the only company at Eureka who have persisted in the attempt to make its employment profitable.

The committee in their report conclude it with the expression of regret that they found so little to approve, so much to condemn. They record as a dry matter of fact the great additions made to the original Richmond property, but say nothing of the skill by which the new locations have been planned and positions taken up; that, if the ore bodies extend as we believe, will be long made up. The committee conclude with the statement that the new locations will make the Richmond Mine the first in the world. Not one word is said of the enormous difficulties the board had to meet and overcome of the foresight exercised, and the liabilities incurred in the interest

of the shareholders, resulting in a success without parallel in the history of English enterprise in America, a success which has given the shareholders 67. 11s. 6d. in cash on each 57. share, leaving some £30,000. in hand, and with a property standing in the market at double the original capital, a success which at this moment might have been far greater had the plans I had suggested been adopted.

The committee was avowedly started to investigate the slanderous statements circulated from time to time for stock-jobbing purposes, expressing disbelief in the returns and prospects of the mine, and disputing the fact of profit being really earned or dividends justified. The report is practically a refutation of these lying statements, but it contains no word of sympathy with those who were so long subject to them.

I believe it is these unjust and uncharitable feelings which have struck the shareholders, and induced them to visit with such severe censure those whom they at first applauded. I think they have done wisely in thus demonstrating to all concerned, both here and at Eureka, that they are prepared to support those who have acted honestly and to the best of their judgment for the common good, and to discourage accusations based on jealousy, envy, and self-seeking, whether enforced by cowardly anonymous slanders, or openly forwarded by an exceptional talent in drawing malicious conclusions from innocent premises.

JOHN ELLIOTT.

Nov. 15.

#### THE FLAGSTAFF COMPANY.

Sir.—I went into Court last Friday to hear how that astute judge, the Master of the Rolls, would deal with the applications made by Mr. Sykes (Erwin Davis's solicitor), instructed by one Thornhill, an alleged debenture-holder, and one Mr. Snell, both of them desiring to get an order from the Court on the company to let them have the conduct of the appeal in the case of Tarbet v. the Flagstaff Company. These applications were first made before the vacation judge. That by Mr. Thornhill was dismissed by him, because it was shown by the trustee that he was not a debenture-holder, but the question of costs was reserved for the Master of the Rolls. Mr. Snell's application was now gone into for the first time, and it was amusing to watch Mr. Sykes, close at counsel's elbow, prompting him at every turn, presently his lordship's attention was drawn to the fact, and, in his judgment, he took notice of the incident, remarking that from what he had heard and seen that day the applications were not as they proposed to be in the interests of the debenture-holders, but that Erwin Davis was somewhere in the background. There is all the appearance of a pretty little understanding between Sykes, Snell, and Davis. Evidently his lordship thought, if after dismissing both applications with costs he concluded with saying they were "wrong in form, in substance, and in motive." Mr. Pearson, the trustee, had admirably spoil the little game.

The next day two petitions to wind up the company were to come on, and I heard were adjourned at the suggestion of Mr. Pearson for five weeks upon the condition that the board, if there be one, should hold a meeting within that month. The directors want a little pressing, and Mr. Vincent will be glad of the opportunity of relating, not so much of what he has done as what he has failed to do, and how much valuable time has been lost, which time might have been advantageously employed in forming a new company, as I have so often urged in your columns.—Nov. 15.

A LAWYER.

[For remainder of Original Correspondence see this day's Supplement.]

#### THE WILD DUCK, OR SPORTSMAN'S ARMS.

"I wonder," says Old Tom, "will denner soon be ready?" "My dear man," said Jan Temby, "you must wait a bit, for I reckon. Uncle Jan Burrows if a can get a pony will be here to denner" "Is, sure," says Jemmy Dowa, "and I suppose we should not begin and Uncle Henny not come." But while this discourse was going on Uncle Henny and Uncle Jan met at fourlanes, and come on together. All was uncommon glad to see Uncle Jan, and a had a hearty welcome. "Well, now I spouse," says Old Tom, "I may tell the maid to bring in the denner." This was soon done, and after all was satisfied, and settled for a comfortable discourse, Uncle Jan said—"It is many years since I've ben this way, and I should come sooner to-day, but when I come to Rough-street the old pony and I couldn't agree—he wanted to go one way, and I wanted to go the other; so after a good thrashing the old chap agreed to come on. When I got up the hill I had a wisht sight as any man could see—knacked bals in all directions. The old pony that so too I reckon, for when we come to Penstruthal a wanted to stop again, but after a bit we made another start. I can mind very well when Penstruthal was one of the richest copper mines in the county, and there must be lots of tin and copper yet in the sett. The capna was turned out, so 'tis said by the neighbours, without any reason, and the biggest manager in the county put in. Now, 'tis true as the Gospel that 'a good bal make a good capn,' but the biggest capn going about can't 'make a good bal,' and the little dividend by all accounts didn't do much good. Old flint-lock guns used to burn priming sometimes, and this war jest like un." "But surely," says Uncle Henny, "they've never spent 90,000. this time in Penstruthal?" "I don't know I'm sure," says Uncle Jan, "but some say there's not much left; but where the money went to 'tis not likely anybody in this mittin will ever know, and if the adventurers found out where every shilling went it would not do them so much good as the denner we've jest had. As I come on there was Wheal Buller, that grand old mine, but knacked, too, like the rest, and so all the way on to this place. Then, again, there is all the great run, Trethellan, Brewer, and West Trethellan, and Trellisc to the west, and on the run of Treavean lodes, all idle, and wisht looking as knacked bals, and whister things I don't desire to see." "It is my opinion, comrades," says Jan Jewill, "that we are not behaving fitly to a stranger, for here are we smoking away and enjoying ourselves, and not giving Uncle Jan time to wet his lips." "Plenty of time," says Uncle Jan, "and I think I will have a puff of the pipe for a bit." "Well, people may say what the mind to, but I feel great comfort in a good smoke," says Uncle Jan, "and I'm sure we all feel comfortable after it." "That's true," says Jan Temby, "and now we will discourse a bit about the learned societies, and the great discoveries that have been made by our young miners." "But have any great discoveries been made?" says Uncle Henny. "We must find it out," says Jan Temby, "and I suppose prizes don't be given for nothing." "Well, point out something new—some improvement," says Uncle Henny, "and we'll all hark to ee, Jan Temby." "Skip-roads, wire-ropes, new stamps, safety-fuze, man-engines, stone-breakers, new dressing machinery, trying samples, and telling everything there is in any stone. Now these are a few of them," says Jan. "I fear," says Cousin Will, "we must look a good way beyond the institutions and societies you refer to, Jan, for the inventors of the things you name. Skips and wire-ropes were used in the North of England long ago; the new stamps may in time beat the old ones; safety-fuze was invented long before the new institutions existed; man-engines is a foreign invention; stone-breakers is a Yankee idea; new dressing machinery will be perfect when it prevents any tin going down Red River; as to assaying and analysis, it is of incalculable advantage to the miner, but it strikes me we had as able chemists and metallurgists 50 years ago as we have now, and until our young chemists and mineralogists are able to utilise their scientific knowledge and acquirements the public will gain nothing by it. We often hear of the untold wealth lying waste in our deads burrows, thrown away by the ignorance of our forefathers. Let the scientific young men of the day turn this wealth to account, then the world will have faith in learned institutions." "I don't know what you think," says Uncle Henny, "but in my opinion, comrades, Cousin Will is right." "I quite agree with ee," says Uncle Jan Burrows, "and I am fine as pleased that I come to this comfortable mittin. But I should like to ax what is your opinion of the Government Inspectors of Mines. Do they prevent accidents? or have we less accidents since they wor appointed?" "I cannot state," says Cousin Will, "whether accidents have increased or decreased since their appointment, but from all the accounts I have seen the inspector after an accident gives his opinion as to the cause, and 40 working miners do the same, but inspector or workmen cannot tell how it occurred, and until the cause of accidents is ascertained and prevented I don't see what good Government Inspectors can do. Every proper manager of a mine looks after the welfare and comfort of his workpeople, and does not require an Act of Parliament to teach him his business or his duty." "It seems to me," says Jan Jewill, "we have to show our visitor that we are glad to see un." So it was agreed to have a fine big jug of egg-nip on parting.—From Cousin Jack's Unpublished MSS.

#### Greetings of Public Companies.

##### PRINCE OF WALES MINING COMPANY.

A special general meeting of adventurers was held at the offices of the company, Gracechurch-street, yesterday, Mr. J. Y. WATSON, F.G.S., in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting, and the minutes of the previous meeting, which were confirmed.

The CHAIRMAN said the agent had been asked to send his usual report, and also a valuation of the machinery, but at present these had not come to hand. Should they arrive in time they would be sent out with a statement of accounts and the proceedings of that meeting.

The accounts for the eight months ending Oct. 31 showed a loss during that period of 375. 14s. 2d., and a balance against the mine amounting to 430. 18s. 6d., after taking credit for 345. 0s. 10d. for arrears of calls.

The CHAIRMAN said—At the adjourned meeting held in April last it was resolved to drive the deep adit on the silver lode at a cost of 40l. per month, which has not been exceeded. This was continued till Sept. 3, when the agent wrote that it seemed to him useless to go on driving, and as he said that parties were willing to take a pitch on tribute at 13s. 4d. in 17. (free of all expense to the company for dressing, &c.), for a period of two months, and as this might possibly result in a discovery, the pitch was let, and the result awaited before calling this meeting. It has produced, so far, something over 3 tons of silver ore, and there are several parties willing to take fresh pitches on the silver lode. The question for the shareholders to decide, therefore, is this: Will they wind up the company at once, or let the pitches for a few months longer, and so go on at a trifling cost. In the hopes that times may improve an enable a limited company to be formed for the purchase of the property, as well as to see whether these pitches may not open out good ground for silver. Whichever plan is adopted a call must be made to clear off the debts. The total debts of the company amount to 834. 17s. 2d. The assets are unpaid calls, 345. 0s. 10d.; cash, &c., 45. 17s. 10d., thus leaving a debit balance of 430. 18s. 6d.

In the last meeting we owed 1089. 11s. 11d., so that the debts have been reduced notwithstanding a loss—or rather an expenditure—of 375. on the eight months' working (110. of which had been incurred at the last meeting), and wiping off 348. 8s. 3d. of calls as bad. The shares in the mine which are good for calls number 5737, so that to clear off the debit, supposing the arrears to be good (and there was no reason to think they were not) would require a call of 2s. per share.

The CHAIRMAN, in reply to a question, stated that some of the ore discovered was very rich, one lot of 3 cwt.s, having produced 2000 ozs. of silver per ton of stuff. He (the Chairman) then read letters from several of the shareholders, some of whom were in favour of going on for a further period, while others recommended the winding-up of the company.

After a short conversation it was decided that the accounts should be passed, and that a call of 2s. per share should be made (to pay off the pressing liabilities), payable on or before Nov. 13, with the usual discount.

It was also decided that the tribute pitches on the silver lode should be let for a further period of two months, on the terms stated by the Chairman, and that in the meantime efforts should be made by the Chairman and the secretary, with the view of selling the mine as a going concern, subject to the approval of a general meeting of the adventurers, which will be called in any case, so that the shareholders may be informed of the position of their affairs.

The proceedings then terminated in the usual manner.

##### [For remainder of Meetings, see to-day's Supplement.]

#### FOREIGN MINES.

ST. JOHN DEL REY.—Morro Velho, Rio de Janeiro, Nov. 11: Produce, month of October, 35,000 octavas—13,562l.; yield, 6.6 octavas per ton. All going on well.

Letters from Morro Velho, dated October 18, also received, reporting as above all going on well.

DON PEDRO NORTH DEL REY (Gold).—Telegram from Rio, dated Nov. 14: Produce for the month of October, 1700 ots.

EBERHARDT AND AURORA.—Telegram: Mine unchanged. Will close mining 9th, mill 16th. Estimated run 1200 tons; bullion, 64000.

COLORADO UNITED.—The superintendent's letter, dated Oct. 23, contains the following:—The mine is looking well, and I shall take out a great deal of ore between now and the end of the month.

RICHMOND.—R. Rickard, Oct. 23: Since my last there is no material change in the development of the mine. The 400 quartzite drift has been extended 23' 6"; the present end is without change. The drift from the bottom of No. 8 chamber has been driven 32 ft. in low-grade ore, with occasional stones of galena. The 500 south on fissure has been extended 18 ft.; the ground is much harder, and the present end shows indications for ore. The same level north on fissure has been driven 28 ft.; the ground is very favourable for drifting; the fissure is very regular. The No. 2 winze has been sunk 9 ft.; ground very hard. It is now within 15 ft. of the level of the 600 cross-cut. The drift from No. 2 has been extended 42 ft. in good ore; the present end is in low-grade ore; this drift is being extended to communicate with the 500 on fissure. A drift has been started from the bottom of No. 7 chamber in a north-westerly direction to connect with rise in ore in the back of the 500; the present end is in fair grade ore, and shows indications of connecting with the ore in the 500. The 600 drift has been driven 20 ft.; ground hard, with seams of ledge matter. The 600 cross-cut has been extended 13' 6"; ground very hard—same character as the winze sinking from the 500. The 600 quartzite drift has been driven 23 ft. with no change. The 800 drift has been driven 19' 3"; ground very favourable for drifting. The 800 north-west on fissure has been extended 40 ft.; ground very favourable for working; wall regular and well-defined. We are now putting in a pump in the winze below the 900, which will be started in the course of a few days, and as soon as the water is pumped out shall begin drifting to prove in depth the favourable indications for ore we had in the 900, and were not able to sink it on account of water. The machinery in the mine is working well. Good progress is being made with the reconstruction of the works, and hope to get everything ready by Dec. 1.

CHONTALES.—Wm. White, Oct. 5: During the month of September the mill crushed 1790 tons of ore, which produced 471 ozs. of gold; average 5½ dwt.s. Value of the gold, 1200.; cost for the month, 597. 14s.; profit, 602. 6s.—Machinery: I have had two of the new mortar boxes put in at San Domingo mill; there are now four others that have to be taken out as soon as there is an opportunity, so as not to interfere much with the returns. With the exception of the old boxes, the mill and machinery are in good condition. The weather during the month has been most peculiar, always threatening for rain, but getting only a sprinkling, just enough to make wood damp for the engine, but not enough for the whole of the stampa; consequently, I took the advantage of putting in the new boxes referred to, and also a new foundation to one of the batteries. Mines: San Sebastian: Stopped from No. 1 stoppe east 214 varas. Stopped from No. 2 stoppe east 212 varas. Stopped from No. 3 stoppe east 227 varas. Rose in No. 2 new rise east 17 varas, and holed to surface. Also put in 60 sets of Nispro timber in the main level, and 19 sets of white timber in the shallow level. Total quartz raised from the above mine during the past month 1424 tons, or 1221 tons, worth on an average 5 dwt.s. per ton.—Estrella Mine: Stopped from new stopes east during the past month 56 cubic varas; rose in new rise 10 varas; also put in 17 sets of Nispro timber in the main level. Total quartz raised from the above mine during the past month 1424 tons, or 1221 tons, worth on an average 5 dwt.s. per ton.

JAVALÍ.—Extracts from manager's report, dated October 5.—Your favour of Aug. 16, with enclosures, came duly to hand. Mr. Chambers arrived here safely on Sept. 27, having been detained on the river for three days owing to the low state of water, and was welcomed heartily from all our men and staff at the mines. I am very sorry to say that the drought keeps on, and it looks as if we should not have any more rain at all. On the plains between here and San Ubaldo considerable rain fell, but here in the mountains all the storms pass by, and the different creeks and small streams carry very little water, so we are unable to run the mill without the help of the engine. I had, therefore, last month already to commence cutting firewood, as the old stock was used up, and that increases our expenditure considerably.

The drawing of the turbine shaft I sent you is the correct one, and I am glad that you ordered it. The shaft of the new turbine bucket sent out was of a different pattern, but as I wanted the ordered shafts in place of the broken one they had to be of the same dimensions. I did not order pinions, because we have a sufficient quantity in store yet. I am very glad that you approve of my proposed outline for reaching the concession manto, and hope we shall get through with this work towards next spring. I am driving the level at a grade of 1½", which is sufficient to run the cars easily down to the mill without covering the rails with iron; should we need any I will order it according to your wishes early enough.

The following is my report for the past month's working:—Mine: 89½ varas were driven in the mine; the rest of the ore was taken as usual from the surface.

The new level to the Concepcion is progressing at the rate of 15 varas per month, and is being timbered in a way to last for years. I take nothing but the very best wood I can find to timber this level. All our other levels and shafts are in the best condition.—Mill and Remittance: 25 stamps worked 23 days, crushing 1625 tons of ore, yielding 432.50 ozs. of melted gold at an average of 5 dwt.s. 7½ grs.

Tailing Mill: In this mill we treated 330 tons of tailings, which gave 40 ozs. of melted gold, at an average of 2 dwt.s. 10 grs. to the ton, rather a lower result than last month, but it shows clearly how very different the quality of the tailing is. I had the intention, and promised to send by this mail a large sample of about 100 lbs. of the accumulated tailings; but as the road over the plains is so very bad I did not think that our mules could carry heavy freight, so I concluded to postpone this for the dry season.—Receipts and Expenditure: The two boxes of coin, containing 4394. were duly received. The expenditure has been 985. 11s. 2d. The remittance is valued at 1170., thus leaving a balance profit of 184. 8s. 10d.

CAPE COPPER.—Cpts. Henwood and Lanksbury, Sept. 30: Ookiep: We are glad to state that the plunger is fixed at the 92, and tramroads laid at this depth, therefore we hope to explore the ground more rapidly in this part of the mine. The ground in the 92 fm. level east from No. 23 winze is become a little more easy for driving and letting out water. We purpose to start a cross-cut south about 3 fms. east from the bottom of No. 23 winze, under the ore ground that we drove through in the 80 south from No. 21 winze. All the trial levels in the 80 at present are in unproductive ground, but we are pushing them on, hoping to cut into something valuable. The stopes at this depth are yielding remarkably well, producing fully their estimated quantities. The driving in the cross-cut south in the eastern extremity of the 68 for the last few days has become exceedingly poor, but we think it is only temporary. The 68 east from under new shafts shows a little improvement; the present forebreast is worth about 1½ ton of copper ore per fathom. The stopes in the 68 fathom level continue to look well. We are getting a great quantity of stuff from this level.—The 68 fathom level south-west from shaft: We have not as yet met with any valuable ground in this direction. There is no change to notice in the 48 east, from No. 14 winze; the ground still looks very kindly, and is producing a little copper ore. It will be seen that little

progress has been made in sinking the new shaft during the past month, in consequence of making preparations for the boring machine, which we are pleased to say started on Oct. 1. We hope now to get on rapidly with the sinking, with the view of making communication with the 48 and 68 fm. levels, in order to ventilate this part of the mine and to enable us to explore more expeditiously the eastern ground. The 26 north east, from new shaft, has been extended 10 fms. 2 ft., but has not opened out any ground of value, and we thought it better to suspend this level; the men are now put to drive south-west on the same branch. We cannot help thinking that our prospects are better at a greater depth, consequently we purpose, after the 48 is communicated with the new shaft, to drive out and intersect this joint.

SPECTAKEL.—Capt. Lanksbury, Capt. Henwood, Sept. 25: In the 53 fm. level cross-cut, south east from inclining, the men will be engaged for a few days cutting down sides of level for the reception of a vein falling through the winze; we shall then drive from this point in an easterly direction towards the copper ground, which we hope to find at this level. Our stopping in the winze below the 27 fm. level will then also be carried on without interruption. Having found a few stones of copper ore in the bottom of the 53 fm. level north of inclining, we purpose the sinking a few fathoms in order to prove its value. The stopes in the bottom of the 36, east of flooan course, yields about 2½ tons per fathom.

Nababeep Mine: Capt. Lanksbury, Capt. Henwood, Sept. 15: Good progress is still being made in sinking the winze shaft below the 28 fm. level. The ground in the 28 south-west having become very poor, we deemed it expedient to suspend the driving in this direction and drive on a joint in a vein running in a northerly direction; this vein has a very promising appearance and produces a little copper ore. The 28 is still being driven and is without any alteration. The ground in the winze below the 17 south-west from the shaft has been during the month very favourable for sinking, its present value being about 1½ ton of ore per fathom. The stops below the 17 has improved.

Returns: Ookiep, for September, 975 tons of 30 per cent.; Spectakel and Nababeep, for August, 1000 tons; together, about 43 tons and 25 tons respectively. Bills of Lading Received: 600 tons per May Bowen, and 390 tons per Lynnwood.—Arrivals at Port Nolloth: The Glenvald, Lynwood, and Hindago.—Arrivals at Swansea: The Tacna and San Jose.—Sale of Ore by Public Tender: 250 tons on October 9, at 11s. 5½d. per unit, realising approximately 44000.—Put Forward for Sale: 500 tons on the 20th instant.

PESTARENA UNITED (Gold).—Nov. 7: District Val Toppa: The lode in the end south of Zero level, on the counter branch, is small, and not to value at present.—Western Lode: In the end north of the Intermediate level, under Zero, the lode is yielding 7 tons per fathom; worth 7 dwt.s. per ton. The stopes behind this end are yielding 3 tons; worth 9 dwt.s. per ton per fathom. In the end south we have a change for the better; we have now a lode of quartz 12 in. wide, carrying pyrites, and a mill trial of this will be made shortly. The stopes in back behind this end are yielding 12 tons per fathom; worth 8 dwt.s. per ton. In the end south in No. 1 level the lode is yielding 7 tons per fathom; worth 7 dwt.s. per ton, and the drive in the west side above this level is yielding 3½ tons per fathom; worth 8 dwt.s. per ton. In the end south of No. 2 level the lode is small. The stopes in back behind this end, or south of No. 2 cross-cut westward, are yielding 7 tons per fathom; worth 7 dwt.s. per ton. In the Intermediate drive south of winze, under this level, the lode is yielding 8 tons per fathom; worth 7 dwt.s. per ton, and in the Intermediate end, south of winze under this level, the lode yields 8 tons per fathom; worth 5 dwt.s. per ton.

Great Quartz Lode: No. 2 Level: In the end south of No. 1 cross-cut, on the supposed line of the great quartz lode, the lode is yielding 6 tons per fathom; worth 8 dwt.s. per ton. The lode in No. 6 cross-cut eastward, through the great quartz lode, is looking promising; a mill trial will shortly be made of the ore coming from this cross-cut. In the Intermediate level north, and in No. 2 stopes in back, the lode is yielding 10 tons per fathom; worth 8 dwt.s. per ton. No.

## WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,  
MINEOWNERS, STOCK AND SHARE DEALERS, &c.  
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have had out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state:

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market price of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

We shall waste but few words more on the apologists for the management of Pant-y-Mwyn. The general management in reality is all that we have criticised, though it may suit the agent and his anonymous friends to divert attention, if possible, from the real points at issue. Capt. Hughes (or those who write for him), measuring, perhaps, other people's corn by his own bushel, is pleased to state that had we been deeply interested in the mine we might, perhaps, have given it praise instead of censure. In answer to this implied rebuke, by which the way, we take from whence it comes, as the boy did when the donkey kicked him, we may remark that had we been the largest shareholders we could scarcely have spoken better of it as a speculation, though, as we said before, it may be very convenient to charge us with what we have not done to divert attention from what we have really implied. It is possible, of course, that Captain Hughes may have made the best use of the means at his disposal, and is not altogether responsible for the defects complained of, but this does not affect in any way the real facts of the case. What we have intended to convey to our readers is this. The mine is a very fine speculation, but, while it has been paraded as a dividend mine returning 60 tons of lead per month, it is so ill provided with machinery that it can only be worked "weather permitting," and that the boasted returns of 60 tons monthly (as we have been informed) have only existed in fertile imaginations. In legitimate mining a property when it is said to be returning 60 tons of ore per month is generally understood to be raising, selling, and delivering that quantity.

On June 30 last the Pant-y-Mwyn Company took credit in the accounts sent to the shareholders for ore in stock £1167. 5s. Out of this a dividend of 2s. per share was declared. Since that time various communications have been sent to the *Mining Journal* as to the great monthly returns. Capt. Hughes again this week leads us to infer they are 60 tons per month. "Aristotle" not only states it, but estimates the profit on 60 tons a month at 500*l.* or 6000*l.* a year. Now, we challenge Capt. Hughes, "Aristotle," or the secretary of the company to publish the sales and deliveries of ore since June 30, and if they have amounted to even 30 tons per month—that is to say, 120 tons beyond the ore in stock, and valued at £1167. 5s. on June 30—we shall be glad and most happy to acknowledge that on this head we have been misled and totally misinformed. Again, we are accused of disparaging the property itself when we have only said that the machinery was totally inadequate to keep the water below the day level, and consequently the best ore was under water, and the returns obtained "weather permitting." Here, again, we challenge Capt. Hughes. Is it not a fact that on the very day our last remarks appeared (Nov. 2) the mine was actually flooded, and had been so for some days, owing to heavy showers of rain, which the day level (for reasons we may refer to hereafter) could not take away—"Yes" or "No," Capt. Hughes? Is it not also a fact, and known to the whole neighbourhood, that on Monday last the engine stopped powerless against the water; that by Wednesday it had risen 4 yards above the day level at Modlyn shaft, 1 yard at Griffiths, and was rising so fast that it is questionable if the bottom of the mine can be seen again this year?

In reference to the monthly costs—the wages in Wales are now 4*l.* to 5*l.* per month per man. Capt. Hughes's statement, therefore, that he can employ 50 men breaking 60 tons of ore per month for 20*l.* is partly true, so far as their wages are concerned, but so far as the costs of a mine are concerned it is a "suppresso veri suggestio falsi." Capt. Hughes, we presume, is paid a monthly stipend; he has under agents, engineers, pitmen, smiths, and other surface men who are paid monthly; the dressing and carriage of 60 tons of ore could scarcely be under 60*l.*; the royalty would not be less than 50*l.* and we presume the offices in Liverpool, with secretary and directors, is not kept up under 20*l.* or 30*l.* per month; so that we shall maintain that the monthly cost of 50 men employed in raising and getting to market 60 tons of lead would be nearer 400*l.* than 200*l.*

And as this is a question interesting to the managers of all mines, we invite further and a wider discussion of the subject. "Aristotle" publishes part of a report of Capt. Wm. Francis, which deals in generalities (that we have not questioned or disputed), and has a few dots in a suspicious place. The engine does for "surface water," and may do for some time to come. . . . What do these dots represent? We ask the question, because singular enough many of our remarks have been based upon a report of a Captain Francis, whose father was agent to the Messrs. Taylor at the old mine, and who, as we have said before, knows more of the district than any of the present agents. The fact is, a gentleman who has been connected with the largest mines in this country called our especial and serious attention to the statements which were being sent to the *Mining Journal*, and elsewhere, regarding the Pant-y-Mwyn Mine, statements, as he said, which must do infinite harm to the mining interest if left unchallenged.\* He then handed to us Capt. Francis's report, dated Sept. 13. It is again before us; in it we read that the ore is being broken "weather permitting." The best ore is under water, and their machinery totally inadequate to cope with it. The company contemplated erecting machinery, and also sinking engine-shafts to properly open the mine some time since, but this will, in my opinion, entail an outlay of from 20,000*l.* to 30,000*l.* Thus upon these remarks, and upon their authority, we

\* As a specimen of some of these statements we may give the following:—On Aug. 17 a paragraph implied that the ore in stock, from which the dividend had been declared, had been sold at 12*s.* per ton, and that 100 tons of rich ore were ready for sale again. Aug. 24 Capt. Hughes wrote there were 100 tons of ore in the bin. On Aug. 31 it was said "reserves of lead discovered, 20,000 tons; besides ore in bin 180 tons (an increase of 60 tons in seven days), and 400 tons per month easily returned."

have based our criticisms, and the question for the Messrs. Francis to decide is this—Is there anything really incompatible in their statements and opinions? Perhaps the "dots" might explain; at any rate, we are somewhat surprised at the report of Capt. William in reference to the dressing-floors being capable of dressing 200 tons per month. Does he really mean this, or that "the present arrangements" anticipate it in the future?

One word now with Aristotle, who on the principle we presume that two blacks if he could find them would make one white refers to our having recommended D'Eresby Mountain shares at 20*s.* each, and that they were worked up to 100*s.* without the mine selling any ore at all. What could this have to do with Pant-y-Mwyn, even if it were all true? The D'Eresby Mountain Mine belonged to the Clementina Company; it was divided into 512 shares only, and the whole of them allotted *pro rata* to Clementina holders. That we strongly recommended them to the readers of the *Mining Journal* at 20*s.* each is a fact of which we are rather proud, and at which many of our friends have good reason to rejoice. The shares rose in value upon a discovery pronounced at the time by the most experienced agents of the day to have been the best since the discovery of Van. At the present moment we hold double the interest in the mine we did before that discovery was made; we have bought shares at the highest price yet given; are the largest shareholders at the present moment; have undiminished faith in its success; and take care that everything connected with it should be "above board," and open to all. There is, therefore, no analogy between the two.

Since the above remarks were written we also have been "inundated" with information, which it is impossible for us to notice this week, nor, in fact, is there any necessity for our doing so. The present state of the mine proves all that we have said, and we have no wish to enter into the "antecedents" or qualifications of agents beyond what we have already implied. One gentleman, who knows the mine and everything connected with it intimately, writes us "I have noticed for some time past your remarks on Pant-y-Mwyn and its management. I also note Capt. Roberts' letter in last Saturday's Journal, and I am bound to say from beginning to end you are correct."

SATURDAY, NOV. 9.—Market continues firm for most descriptions of tin shares. Lead shares are also more in demand. Carn Brea, 35 to 40; Dolcoath, 28 to 30; South Condurrow, 10*s.* to 10*s.*; South Frances, 5 to 5*s.*; Tincroft, 8 to 9*s.*; Agar, 4 to 4*s.*; Grenville, 2*s.* to 3*s.*; Van, 15 to 16*s.*; Great Laxey, 14*s.* to 15*s.*; Aberlyn, 11 to 13*s.*; Roman Gravels, 6 to 6*s.*; Tankerville, 3 to 3*s.*; West Tolgus, 39 to 41*s.*; Pateley Bridge, 3*s.* to 3*s.*

MONDAY, NOV. 11.—Tin shares are in good demand in consequence of a rise of 2*s.* in the standard. Dolcoath, 29 to 31*s.*; Carn Brea, 36 to 38*s.*; Tincroft, 9 to 10*s.*; South Frances, 6 to 6*s.*; Grenville, 2*s.* to 3*s.*; Peevor, 6*s.* to 6*s.*; East Van, 13*s.* to 24*s.*; Devon Great Consols, 15*s.* to 25*s.*; Van, 15 to 16*s.*; Lead Hills, 1*s.* to 2*s.*; Pateley Bridge, 3*s.* to 3*s.*; Rookhope Lead, 7*s.* to 16*s.*; Parry's Mountain, 3*s.* to 5*s.*; Aberlyn, 11 to 13*s.*; Roman Gravels, 6 to 6*s.*

TUESDAY, NOV. 12.—Market very firm for tin stocks, and there is a fair demand for shares in good lead mines. Van, 15*s.* to 16*s.*; Great Laxey, 15 to 16*s.*; Aberlyn, 11 to 13*s.*; Roman Gravels, 6 to 6*s.*; Tankerville, 3 to 3*s.*; Pateley Bridge, 3*s.* to 3*s.*; South Frances, 6 to 6*s.*; Grenville, 2*s.* to 3*s.*; Peevor, 6*s.* to 6*s.*; West Frances, 2*s.* to 3*s.*; Agar, 4 to 4*s.*; Grenville, 2*s.* to 3*s.*; Peevor, 6*s.* to 6*s.*; West Tolgus, 39 to 41*s.*; Great Laxey, 15 to 16*s.*; Pateley Bridge, 3*s.* to 4*s.*; Tankerville, 3 to 3*s.*; Roman Gravels, 6 to 6*s.*

WEDNESDAY, NOV. 13.—There is very little change in quotations to-day, the dealers being busy with the settlement. Tin and lead shares continue firm.

THURSDAY, NOV. 14.—Market for tin shares rather weaker. Carn Brea, 35 to 37*s.*; Dolcoath, 27 to 29*s.*; South Condurrow, 10*s.* to 10*s.*; South Frances, 6 to 6*s.*; Tincroft, 8 to 9*s.*; Grenville, 2*s.* to 3*s.*; Peevor, 6*s.* to 6*s.*; Van, 15*s.* to 16*s.*; Great Laxey, 15 to 16*s.*; Pateley Bridge, 3*s.* to 4*s.*; Tankerville, 3 to 3*s.*; Roman Gravels, 6 to 6*s.*

FRIDAY, NOV. 15.—Shares in tin mines firmer. Lead shares more in demand. South Condurrow, 10*s.* to 10*s.*; South Frances, 6*s.* to 6*s.*; Dolcoath, 28 to 31*s.*; Carn Brea, 35 to 37*s.*; Agar, 4 to 4*s.*; Grenville, 2*s.* to 3*s.*; Van, 15*s.* to 16*s.*; Great Laxey, 15 to 16*s.*; Pateley Bridge, 3*s.* to 4*s.*; Tankerville, 3 to 3*s.*; Roman Gravels, 6 to 6*s.*

**M.** R. WILLIAM H. II. WATSON having had a few years' experience in Practical Engineering and Mining in Cornwall, as well as two years' practice in the London Stock and Share Markets, begs to offer his advice and services to Shareholders and Investors in Mines, and in the Purchase and Sale of Shares. W. H. II. W. has had special business placed in his hands in the following shares:—

100 PITANQUIL, 10 <i>s.</i>	20 WEST ROSKEAR, 25 <i>s.</i>
100 SOUTH FRANCES.	D'ERESBY CONSOLS.
100 HULFA FALL.	20 ABERLYN, 6 <i>s.</i>
100 MORFA DU, 18 <i>s.</i>	50 CLEMENTINA, 21 <i>s.</i>
25 ARENDAL, 2 <i>s.</i>	GLENROY.
100 MONYDD GORDDU, 22 <i>s.</i>	PANT-Y MWYN.
100 DEVON GREAT CONS. (to sell).	TANKERVILLE.
20 SOUTH DARREN, 2 <i>s.</i>	20 GREAT LAXEY.
100 D'ERESBY MOUNTAIN.	EAST VAN.
	ROMAN GRAVELS.
	100 CREBOR, 5 <i>s.</i>

In the Sale and Purchase of Shares advertised cash will be paid and expected on receipt of transfers.

W. H. II. W. has for SALE all or any part of 20 Aberlyn shares, at par; also, 50 Clementina, at 1*s.*; also, a few Shares in West Roskear, in which a discovery is daily expected.

Address: W. H. II. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

spar, clay, gossan, and blends—a kindly lode. The 45, east on middle lode, has rather improved in appearance the last few days, the lode becoming stronger, and containing more blends. The easternmost shaftmen are busy cutting plat at this level, and I expect to have this completed by Tuesday next, when we shall commence sinking under this level (the 45 fathom level) with a full pare of men. We have had several days drawing of stuff from this level with the new engine, and I am pleased to say that the engine is working very satisfactorily. No other change to report from this part of the mine this week. Surface operations are progressing as favourably as can be expected, considering the state of the weather.

—Craglog Engine-Shaft: I have let a tribute pitch to two men at the 30 yards level east of shaft at 7*s.* per ton for dressed ore.

CAMBRIAN MINES.—T. Glanville, Nov. 9; ESGAIR FAITH: Our lead discovery is holding as good as ever, and will produce 2 tons of rich lead ore per yard. We have commenced to sink the shaft below the 70 yard level, and find the copper equally as good as when cutting plat; it will yield 3 tons of copper per yard. On Monday next we shall commence to put in cisterns below the 70 yard level and fix lift, at the same time we shall erect new braces on the top of the shaft. This accomplished I shall set the men to sink the shaft another 20 yards. In the 45 yard level, west of shaft, we are cross-cutting north and south, which is composed of a mass of sulphur, and occasional stones of lead ore, and begin to sink southward to intersect the main part of the great lode.

CLEMENTINA.—J. Roberts, Wm. Sandoe, Nov. 11: Monthly Report: During the past month all our attention has been devoted to the cutting of the wheel-pit, which we expect will be complete by the end of the week. This being done we shall have to cut the top of the rock to a level for a frame to bear the plumbum's blocks. We hope that the wheel will be on the mine by the time we are ready for it.

COMBMARTIN.—T. Harris, T. Comer, Nov. 14: The lode in the 15 is from 4*s.* to 5*s.* wide, containing a large body of quartz, with a little mundic, white iron, and lead. The adit level cross-cut has cut through the hard bar of ground (last reported on, and is now in a light channel of killas, highly mineralised, with seams of quartz, mundic, and fine lead). The lode in the adit level south-east, on caunter lode, is about 2*s.* ft. wide, composed principally of nice-looking quartz, with flocks of veins intervening, containing mundic and a little lead—a very kindly lode. We have suspended the driving of this end for a little while, and placed the men in the adit end, north-west on the caunter lode, where the lode is 4*s.* wide, 2*s.* ft. of which is made up of branches of mundic, impregnated with fine lead, but not enough to value; but it has such a promising appearance for a deposit of lead that we are anticipating an improved lode very shortly, and so we have placed four men there now to drive, as the ground is easy for driving.

COURT GRANGE.—James G. Green, Nov. 12: As under I give you appearance of the mine to day. The 45 stopes are without change. The 30 stop, east of shaft, is looking well. The 30 stop, east of footway, is poor at present. The 14 east stopes is in a big lode, yielding dressing work throughout, worth 25 cwt. per fm. All the other points without change. Dressing is going on without intermission, and we shall sample on the 19th instant.

DE BROKE.—J. Phillips, Nov. 13: At the 55, east of Wilson's shaft, we are driving a cross cut south to prove the lode in width and produce. The lode in the 45 west is not producing much ore at present, but is of good size, and with good indications. The winze below the 35 east is suspended, owing to the water. The stopes are yielding good orestuff, but there is no alteration to report since last week. The weather is rather cold and stormy. We are, however, going on fairly with the dressing for next sampling of 20 tons ore.

D'ERESBY CONSOLS.—William Sandoe, J. Roberts, Nov. 13: In the end driving west towards Cobblers' lode there has no change worthy of notice taken place since last report. The large vug still continues with us, and is letting out an abundance of water. The ground also maintains its favourable character, thus enabling us to make good progress in driving. The lode on which we are driving is pretty much split up at present, showing here and there strong spots of lead ore, blende, sulphur, &c.

D'ERESBY MOUNTAIN.—John Roberts, William Sandoe, Nov. 13: Monthly Report: No. 1 Adit: During the past month we have driven about 2*s.* fms., on a lode varying in size from 1*s.* to 2*s.* ft., containing rich blende, gossan, and lead ore—a very kindly-looking lode at present. No. 3 Adit: We have opened the level here for the rise, and have commenced rising, and are now up from 4*s.* to 5*s.* ft. from the level. The lode is full 2*s.* ft. wide, containing a good mixture of lead and blende. No. 4 Adit: The stopes has been and is now much the same as for some time past, yielding fair quality stuff for the crusher. We have completed the diverting of the tramway by the winze to No. 5, have fixed the ladders, and cleared and secured 3 fms. in the winze, which is now about 13 fms. below the level. We find this winze is sunny in the shade on the face of the lode, so of course we cannot expect to make any fresh discovery in clearing the winze. No. 5 Adit: During the time we have cleared 11 fms. and made it secure, and are now about 20 fms. from No. 3 shaft; at the present moment the level is choked full of stuff, and requires timbering. Surface: We are getting the details of the dressing-floors near completion. The stone-breaker is fixed, and we are making flooring about it, and driving by it to get it running in a few days. We have treated the pile of coarse stuff that was lying near the crusher, which produced just as much lead as we expected. We have also brought down the leadstuff from the upper levels, which is under treatment, and we have commenced to put lead in the bin for the market. The stone-breaker not being ready, the process has been slow and tedious, but we hope to make greater dispatch when we commence on the stuff from the large pile in the stopes at No. 4. Our confidence in the mine is still the same, and we believe that by a little perseverance it will do all that we have said about it.

DENBIGHSHIRE CONSOLIDATED.—Abel Francis, Rupert Prince, Nov. 14: There is a change coming in the 112 west, and we believe we are close to a new lode. Good progress is being made east. In the 66 and in the back of the 112 west the produce continues very satisfactory, and we have delivered since our last a little more than 12 tons of lead ore.

DERWENT.—J. Morphett, Nov. 14: I beg to hand you a brief statement of operations here as follows:—Jeffries' Shaft, Middle Vein: The 95 east is as for some time past. The sides in this level and No. 1 stopes in the back, both let to the same partnership of men, are worth respectively 15 cwt. of per fathe; No. 2 stope yields 17 cwt.; No. 3, 15 cwt.; and No. 4, 14 cwt. We have started a couple of men in the flats over this level, at present yielding

during the past week, and we are very hopeful that there will soon be a lode to value at this point. In the 155 end a branch has come in from the west side, and probably the whole lode will be in regular form again quickly, and we hope at the same time resume its former productiveness; the present value is 12/- per fathom. The cross-cutting is being continued in the 170 end; average value 10/- to 12/- per fathom. Any day may bring us to the east side of this disturbed ground. The 155 is without change, but in the 140 there is a lode of improved appearance, and beginning to show some blonde. Good progress is being made in driving the cross-cut in the 125 north, but nothing fresh to report. In the 110 end there is a rough in the lode, which has temporarily cut off the ore. The lode in the end going south of the rise, south of this shaft, in the 110, is worth 18/- per fathom.—South Ground: The joint rise and stope in the 165 is worth 20/- per fathom. A winze has been sunk about 3 fathoms to open a piece of ground in the 155, which is of some promise, but so far it is much the same as the piece of ground worked above, which scarcely paid for doing. The stope in the 145 is for a short length worth 20/- per fathom, but a great deal of unproductive ground has to be wrought to get all these nests of ore in this part of the mine. A joint rise and stope in the 100 is for about 10 ft. long worth 40/- per fathom; the remainder of the length of the place is poor. The stope in the sole of 110, north of shaft, no longer pays for working. In the cross-cut in the 90 south there is no change. All machinery, &c., throughout the mine going on well.

**GREAT RETTALLACK.**—T. Harris, Nov. 9: The ground in the boundary shaft has very much eased for sinking, and the men are making good speed. We have sunk 3 fms. 4 in. in the lode, in which we find branches of quartz, white iron, mica, and stones of blonde, but not to value. The shaft is now 23 fms. 1 ft. from surface. The men's contract not being out there was no setting to-day.

**GREEN HURTH.**—W. Vipond, Nov. 8: The sinking below the incline level is now down 4½ fms. We had very nice ore in the lower part of the hazel this week on wet side; I have no doubt that we have very fair ore on this side whenever it may be cut into. The stope on No. 3 cross vein is rather better this week; east and west vein is as last reported. The men are now working in bottom of the incline level; it will be a week or two before they reach the ore in this. I think we have got fairly hold of the branch in the quarry level; there is no ore in it yet in poor, worth 6 cwt.s. per fathom. In rise No. 7 on section, east of Low shaft, in order to hole to the old winze from the 25, we are in plate bed above the Four-fathom limestone, consequently there is no ore to value, but a few fathoms will pass through, when we shall lay open some stoping ground. The stope west of Low shaft, random of the 42, is worth 8 cwt.s. per fathom. We have had very severe weather and a heavy snowstorm, which has rather hindered our progress in done for some time past.

**HARWOOD.**—W. T. Valentine, Nov. 8: Hardship: South End: There is no change to notice since my last report, excepting that the vein looks rather better than it

LADY WELL.—A. Waters, Nov. 14: There is no change to write about here since last week's report. We are pushing on the points steadily.

**MEDLYN MOOR.**—Joseph Prisk, Charles Rowe, Nov. 12: The following is a report of all operations carried on underground and at surface for the last six months, and of the improved prospects of the mines. Since the general meeting of shareholders held on April 17 our principal points of operation have been the despatching of the mine below the 27, the No. 1 south lode, and sinking a new shaft from surface to develop a north lode, for which purpose we have had to do the following preparatory work:—No. 1 South Lode: The flat-roof shaft has been cut down and enlarged from the 8 to the 17 fm. level, and a communication effected with the 27 by rising and sinking. We have also sunk this shaft below the 27 about 6 fms., for the purpose of testing the lode in depth; finding it did not improve in sinking, we drove about 4 fms. east, where we considered a shoot of tin seen in the level above might be met with, but so far it has not proved to be as good as we had reason to expect. This was considered by great mining authorities to be one of the main lodes of the district, and in the upper levels gave signs of being highly productive, and even the 27, when the shoot referred to above was driven through, was worth for a short distance 25/- per fathom. Here the ground is hard, costing 9/- per fathom for driving.—New North Lode: A new shaft has been sunk from surface to the 20; here the lode was met with by a short cross-cut, which is being wrought on with every possible dispatch. The 20 has been driven east of shaft about 10 fms. through a good paying lode, especially for tribute working, which is the most profitable mode for a lode of this character, as the ore-stuff is very rich, and free from all impurities; the lode in this end is worth 9/- per fm., driving by six men, at 3/- per fathom. The 20 has been driven west of shaft about 11 fms., and with the exception of 3 or 4 fms. has all been through paying ground; the lode in the present end is worth 10/- per fathom, driving by six men, at 3/- per fathom. In the stope in the back of the 20 east the lode is worth 5/- per fathom; the lode in the stope in back of the 20, west of shaft, is worth 8/- per fathom; working by four men, at 18/- per fathom. The lode in the stope in back of the 20, east and west from the 90 winze, are worth each 4/- per fathom. The lode in the 90 west indicates that we are on the course of a good lode; we shall strip it down when the level is clear of stuff. No. 1 stope, in the back of the 90, has a splendid appearance, worth 40/- per fathom. Nos. 2 and 3 stope, in back east and west from winze, are not looking so well as of late, but an improvement may be expected daily. The 80 west and 70 cross cut are without material change. The stope in the back of the 50 west is worth 28/- per fathom. The rise in the 50, east of King's, is worth 9/- per fathom. The winze in the bottom of this level is worth 11/- per fathom. The 40, east of the engine-shaft, is worth 5/- per fm. The 40 west yields good stones of tin. The 30 west carries low quality limestone. The 30 east has improved, now worth 12/- per fathom, and the ground easy for driving.

**SOUTH CONDURROW.**—W. Rich. W. Williams, H. Abrahams, Nov. 13: The rise in the 93 fm. level east is worth 20/- per fathom. The 93 west is worth 15/- per fathom. The 80 end east is letting more water, and the lode looking promising to improve. The 70 end, east of King's, yields a little tin. We shall now resue driving the 70 end, west of Plantation shaft, on the copper ledge, which yields stones of ore. The 70 west on the tin lode is worth 5/- per fathom. The Plantation shaft carries stones of tin. We have not yet communicated the ends at the 50 at the Plantation shaft. The rise in the back of the 50 west is worth 28/- per fathom. The rise in the 50, east of King's, is worth 9/- per fathom. The winze in the bottom of this level is worth 11/- per fathom. The 40, east of the engine-shaft, is worth 5/- per fm. The 40 west yields good stones of tin. The 30 west carries low quality limestone. The 30 east has improved, now worth 12/- per fathom, and the ground easy for driving.

**SOUTH DARREN.**—H. James, Nov. 13: It consequence of the very heavy floods of rain during the past week we have been unable to keep the water below the 100, so that the men could go on with their bargains. To day the water is in fork, and the men have resumed their work at this point. The 100 end, east and west from the 90 winze, are worth each 4/- per fathom. The lode in the slide in the 90 west indicates that we are on the course of a good lode; we shall strip it down when the level is clear of stuff. No. 1 stope, in the back of the 90, has a splendid appearance, worth 40/- per fathom. Nos. 2 and 3 stope, in back east and west from winze, are not looking so well as of late, but an improvement may be expected daily. The 80 west and 70 cross cut are without material change. The stope in the back of the 50 is worth 21/- per fathom. The 40 tons of silver-lead ore sold the 11th inst. realised 53/-.

**SOUTH DE ERESBY.**—William Bennetts, Thomas Bennetts, Nov. 13: The cross-cut driving east at No. 1 adit is of much the same character as reported last week—having a very kindly appearance. In No. 2 adit the men are making good progress in cutting open the adit level and laying a permanent railway; the lode at present is standing to the north of us, and we expect to find it rich when we strip it down. There is no change in the lode in the forecourt, being of the finest description, and very productive for blends.

**SOUTH CONDURROW.**—W. Rich. W. Williams, H. Abrahams, Nov. 13: The rise in the 93 fm. level east is worth 20/- per fathom. The 93 west is worth 15/- per fathom. The 80 end east is letting more water, and the lode looking promising to improve. The 70 end, east of King's, yields a little tin. We shall now resue driving the 70 end, west of Plantation shaft, on the copper ledge, which yields stones of ore. The 70 west on the tin lode is worth 5/- per fathom. The Plantation shaft carries stones of tin. We have not yet communicated the ends at the 50 at the Plantation shaft. The rise in the back of the 50 west is worth 28/- per fathom. The rise in the 50, east of King's, is worth 9/- per fathom. The winze in the bottom of this level is worth 11/- per fathom. The 40, east of the engine-shaft, is worth 5/- per fm. The 40 west yields good stones of tin. The 30 west carries low quality limestone. The 30 east has improved, now worth 12/- per fathom, and the ground easy for driving.

**SOUTH MOLTON CONSOLS.**—T. Harris, T. May, Nov. 14: There is very little alteration in the nature of the ground in the adit cross-cut to report from our last, the ground still having an encouraging appearance.

**SOUTH ROMAN GRAVELS.**—J. W. Powning, Nov. 14: Shovel: We have reached the footwall of the lode in the bottom of the winze, and are taking the whole of the spar course in the sinking, which is from 3 to 4 ft. wide. This is composed of good looking carbonate of lime, and nice cubes and patches of lead ore; there are also splendid lumps of solid ore in the soft portion of the vein. The lode, though not rich, is all savable, and yields in addition to the lead about 5 cwt.s. of carbonate of barytes of good quality per fathom. The lode throughout is of the most promising character, and presents every appearance of becoming profitable as depth is attained. I calculate to sink from 6 to 9 ft. per week if the ground keeps as at present.

**SOUTH TOLCARNE.**—William Rich, James Knotwell, Nov. 13: The lode in the 36 end east has within the last few days yielded some fine specimens of rich red oxide and native copper as can be seen, although the end at present is not so good as it was; but yet looking at the rich stones of ore recently broken we cannot help thinking it must eventually lead to a good discovery of copper—the ground, too, is easy for exploring, the 36 having been extended 10 fms. 3 ft. in the last four weeks. The 24 end west has a kindly appearance, and yields occasionally good stones of ore.

**TALYBONT.**—Thomas Glanville, Nov. 9: North Side of Mountain: In sinking the western shaft we have a lode 2 ft. wide, of a very promising character, and producing 10 cwt.s. of lead ore per yard. We are now cross cutting south towards the lode from the adit level west, about 80 yards west of shaft; also from the adit level west of new shaft, and when the lode is intersected from these two points I have no doubt we shall open up some good ore ground.

**TAN-YR ALLT.**—John Davis, Nov. 14: The No. 2 stope continues to improve up the new flat-rods in lieu of wire-ropes for connecting the 45-ft. diameter water-wheel with the pumps, and consequent cessation of pumping for 48 hours, the water rose to the 24. Everything now is working well, and I hope to have the min. in fork again by the 15th, and driving resumed in the 34 west by six min. The 24 west has intersected a large cavity, which has cut out the ore. The stope over this level by winze is worth 2 tons per fathom, but as the ground is of a very loose nature we have to proceed carefully, and make all secure before we can avail ourselves much of the ore. We intersected a small branch of quartz in the 12 cross-cut this morning. There is no other change. All the machinery is working well.

**MORFA DU.**—T. Mitchell, Nov. 13: We have no change of any importance here this week. The bottom level continues to look very well, and yielding good bluestone, intermixed with carbonate of lime; at present the ore will require assorting, but we think the white stone will soon work out, and the ore will be come more solid as we get out of the influence of a cross joint.

**NEW BRONFLOYD.**—Thomas Kemp, Nov. 14: Middle Lode: The north part of the lode carried by the 73 end, west of Curtis's cross-cut, has within the last few days considerably improved, now worth for the width of level (5 ft.) fully 4 tons of lead ore per fathom, and leaving good ore standing on the south side of the driving; the lode altogether has a strong and masterly appearance for the production of a great body of mineral. All other bargains are without any change to notice. Hauling and dressing going on regularly. Machinery in good working order.

**PANDORA.**—H. Nottingham, Nov. 13: We shall start to work in both ends and rise on Goddard's lode, in the 33, to morrow. We have been delayed in getting the water out by a heavy flood we have had, and the failing of the pump-bucket has Sunday. In the 20, on the new lode, No. 2 stope is as last reported, the end going south on the footwall of the lode is producing a mixture of lead and blonde, worth 10 cwt.s. of the former and 15 cwt.s. of the latter per fathom. This piece of the lode was not driving on does not extend to the roof of the level, but is showing wider than the level in the bottom. We have commenced in No. 1 winze, in the bottom of this level, but have not sunk any yet; I think we shall now be able to sink this, though it is rather wet.—Goddard's Lode: We have resumed driving the 23 end north; it is at present unproductive, but we expect to see it become productive shortly. The rise or stope in the back of the lode is worth 15 cwt.s. of lead and ½ ton of blonde per fathom. The winze sinking under this level is worth for the length of winze 1 ton of lead and ½ ton of blonde per fathom. No. 1 winze, south of the shaft cross-cut, has improved, and in 15 cwt.s. of lead and the same of blonde to a fathom. No. 2 is in a loose lode, scarcely yielding enough ore to value, but showing good indications.—Surface: We are making fair progress on the dressing floors, and are now pretty well supplied with hands, and we are keeping the grates and crusher well supplied with stuff. The machinery is all working well, we have worked the engine (but not connected with the pumps), and it goes well. With the very heavy rainfall we have had all the reservoirs are filled, and the Bod Lake is as full now as it was at any time last winter, and as all our reservoirs are full much sooner than usual we shall not require to draw any from the lake for a long time. I do not expect we shall require the engine to pump till next Midsummer.

**PARYS MOUNTAIN.**—T. Mitchell, Nov. 13: The 90 south continues to look promising, and good progress is being made in the drivage. We hope soon to have something good to report from this end, as we consider the most hopeful part is still before us. We have finished cleaning up the precipitation pits, and are now drying the precipitate, and preparing it for sampling.

**PATELEY BRIDGE.**—C. Williams, Nov. 14: The Rake vein in the 30 east is worth 1½ ton of lead ore per fathom, with every indication of speedy improvement. I am glad to report a decided improvement in the 20 east, on Rake vein, which is opening out very satisfactorily, and producing rich ore, worth 10 cwt.s. per fathom, and likely soon to become very productive. The Lump vein in the 30 west has further improved, being 7 ft. in width, and worth 1½ ton of lead ore per fathom. I have put six men in this bargain to push the end forward as much as metal. The stope and tribute pitches are producing lead ore as usual, and are quite good.

**PENHALLS.**—S. Bennett, F. Vian, Nov. 9: The 70 east end continues to produce a small quantity of tinstint of low quality. The 60 east end on the north part of the lode is worth 1½ to 2½ per fathom. The 55 east on another section of the lode is worth 6/- to 7/- per fathom. The 48 west is worth 8/- per fathom.

**PENNANT.**—Nov. 14: The lode in the 80 west is improving. The 60 stope is producing a good quantity of mineral. The cross-cut at the 20 is the most con-

tinuous, and shows plainly that the south lode is still in front of us, and when

proved will be one of the most important features connected with the undertaking since its establishment.

**PICTON.**—J. Wilcock, Nov. 11: The 126 yard level north still yields good stuff for dressing-floors. We have commenced stowing the back of this level, from which we get good stones of ore. I expect to cut a course of ore in those backs which went down in the sole or bottom of the level above. A small trench was made in this level on this ore, but the water was troublesome, hence it was abandoned. I am pleased to state there is a little ore coming in the sump again in the 126 south; the matrix of the lode is such as to lead us to expect a saving work. We have commenced to clean out the level going north leading to the Crown Hat shaft, in which it is reported on good authority that there is a rib of ore standing. We have about 40 yards to re-open to reach this point. Dressing of ore at surface is going on as fast as the nature of things will permit. Machinery works well.

**ROMAN GRAVELS.**—A. Waters, Nov. 14: Good progress is being made in yielding ore as for some time past. We have to-day sampled 180 tons of lead ore and 25 tons of blonde (four weeks output) for sale next week. The whole of the place is poor. The stope in the sole of 110, north of shaft, no longer pays for working. In the cross-cut in the 90 south there is no change. All machinery,

wide, worth 8/- per fathom for tin and copper. The 60, No. 4 stope in bottom west, by twelve men, at 8/- per cubic fathom; the lode is 8 ft. wide, worth 15/- per fathom for tin. The 60, sinking winze west, by six men, at 7/- per fathom; the lode is 4 ft. wide, low priced tin-stuff. The 60, No. 1 stope in back west, by four men, at 3/- per fathom; the lode is 3 ft. 6 in. wide, worth 5/- per fathom for tin. The 60, No. 1 stope in bottom east, by six men, at 3/- per cubic fathom; the lode is 12 ft. wide, worth 12/- per fathom for tin and copper. We have put six men to blast down a piece of lode standing in the 70 on the junction of the caunter with Wilson's lode, and six men to blast down a piece of lode that is standing in the side of the 70 west, on Wilson's lode. These men for a short time will have to work according to instructions, as soon as we have taken down as much as we think will pay for working we shall put them to stope the bottom of the level, and will then set them to stope at per fathom. One pitch on tribute in the bottom of the 60 north, on caunter lode, by two men, at 10s., in 17/-, at a standard of 28/- per ton.

Our machinery is all working well.

**WEST ROSKEAR.**—H. Stephen, W. Bennetts, Nov. 14: The lode in the 36 west without change to notice. The men that were driving the 36 east on counter are placed to sink a winze below the 24 before the 36 end for the purpose of giving better ventilation, the air being insufficient at the 36 by the present mode of conveying it for driving both the levels. The lode in the winze is about 3 ft. wide, saving work for blonde. The 24 west of engine-shaft has a little better appearance. We have placed the men that were driving the 24 east and west of Stephen's shaft to open ground at that shaft preparatory to sinking below the 24, and to get it in readiness against the 24 east from the engine-shaft is communicated.

**WEST TANKERVILLE.**—A. Waters, Nov. 14: No material change here since last week's setting report. We calculate that our raisings for this month will be quite 25 tons of lead ore. We have to day sold 15 tons of blonde for 54/- 7s. 6d.

**WEST WHALE TOLGUS.**—Nov. 13: The ground in Taylor's shaft is looking somewhat better than it has been. We have some hope of its further improving.

The lode in the 145 end west is broken up and disordered by an elvan, and is also poor.

The 145, east of No. 1 cross-cut, is through the cross-course, and has reached the lode, but the men are set to drive east under it, as it is too wet to drive on before it is drained a little more.

The stope in the back of the 145 are yielding tolerably well. The lode in the 135 west is still a tolerably good size, but not quite so good as when last reported: we call it 2 tons of ore per fathom. We think it will soon be better, as there is a good run of ore before us in the level over.

No. 4 winze below the 135 holds on very well. We calculate on 20 tons of ore for the 15 ft. sink, in it last month. We have also set a winze to sink a little west of the shaft in the same level, 2 fms. west of the great course, in a good ore vein. We reckon on its being drain'd by the No. 4 cross-cut in the 145. One of the stope in the back of the 135 will be finished this month. The stope in the back of Little cross-course, and over No. 4 winze, is holding on very well, and yielding 5 tons of good ore per fathom. Richard's shaft is deep enough for the 105, and we have set a cross-cut to drive south towards the lode, and have also set to case and divide down the shaft to bottom to bring down the whin kibble to save drawing by tackle. The lode in the 65 end is still small and poor. We are forking the water in Taylor's shaft tolerably well. The winze men are working in the winzes below the 135, and we hope to have the 145 fm. level made at work-to-night.

**WHEAL CHERBOURG.**—J. Au Levre, Nov. 14: The lode in the 110 east has slightly improved during the past week, and will now yield 2 tons of manganic per fathom and a little siliceous work for copper ore. All other points are without change.

**WHEAL UNY.**—W. Rich, Matt. Rogers, Nov. 12: The lode in the 160 end west is worth 12/- per fathom, and the ground easy for driving, and letting out water freely; we are of opinion this part of the lode has not been seen in the upper levels; we intend to soon put up a rise in the back of this level to prove the lode. The 172 end east yields stones of tin. The 140 west is worth 8/- per fathom. The 132 end east is worth 8/- per fathom. The 140 east is looking promising to improve, and now yields rich stones of tin.

**WHEAL GRENVILLE.**—T. Hodge, Nov. 14: At Goodl's shaft we have a part of the flat lode, about 5 ft., which is producing stamping work for tin; the lodes are not yet in junction. The 150 east end is worth 6/- per fathom. The 140 east end is worth 9/- per fathom. The 140 west end is worth 8/- per fathom. The 130 east end is worth 8/- per fathom. The 140 east of the western shaft is worth 8/- per fathom. The lode in the 130 east end is poor. No other changes.

#### THE VAN MINES—MONTHLY REPORT.

As under I beg to hand you my monthly report and setting list:—At the 120 west we have crossed north 10 ft. 6 in. but are not yet through the lode, which at this point produces spots of lead and strong blonde. The cross-cut is now suspended, and the driving of the level resumed, by six men, 6 fms. stant, at 8/- per fathom. The 105 is extending 10 ft. 6 in. west of shaft. The part of the lode carried here is worth 9 tons of lead ore per cubic fathom; set to six men at 18/- per fm.

The 105 level is extended 55 fms. east of shaft. The lode in the present end produces good saving work; set to four men at 120/- per fathom. The 90, west of shaft, is worth 15 cwt.s. of lead ore per cubic fathom; set to six men at 100

## TO THE METAL TRADE.

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## The Mining Market: Prices of Metals, Ores, &amp;c.

METAL MARKET—LONDON, NOV. 15, 1878.

	IRON.	TIN.
	£ s. d.	£ s. d.
Fig. G.M.B., f.o.b., Clyde.	2 3 3	68 0 0
Scotch, all No. 1	2 5 0	68 10 0
Bars, Welsh, f.o.b., Wales	5 0 0	—
" in London	5 10 0	5 15 0
Stafford.	6 10 0	7 0 0
" in Tyne or Tees.	5 5 0	5 10 0
Swedish, London	8 15 0	9 5 0
Bills, Welsh, at works.	4 15 0	—
Sheets, Staff., in London	8 5 0	—
Plates, ship., in London	6 12 6	6 15 0
Hoops, Staff.	7 5 0	7 10 0
Nail rods, Staff., in Lon.	6 0 0	6 10 0
STEEL.	—	—
English, spring	13 10 0	19 0 0
" cast	50 0	40 0
Swedish, kgs.	14 0	0 0
" bag. ham.	15 0	0 0
LEAD.	—	—
English, pig, common	14 17 6	—
" L.B.	15 5 0	—
" W.B.	16 0 0	—
" sheet and bar.	16 0 16 5 0	—
" pipe	16 10 0	—
" red	18 10 0	19 0 0
" white	24 0	26 0
" patent shot	19 10 0	19 15 0
Spanish	14 10 0	14 15 0
NICKEL.	—	—
Metal, per cwt.	18 0 20 0	0 0
Ore, 10 per cent. per ton	24 0 26 0	0 0
QUICKSILVER.	—	—
Flasks of 75 lbs., ware.	6 12 6	—
Silesian	16 18 0	17 0 0
English, Swansons	17 10 0	17 15 0
Sheet zinc	21 0 0 22 0	0 0
At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1s. 6s. per box more than 10s. quoted above, and add 5s. for each Terme-plate 2s. per box below tin-plates of similar brands.	14 x 10	—

REMARKS.—The amount of business transacted in metals generally does not materially increase, and the market for the most part continues extremely dull and heavy. Tin is the one exception, and that seems to be engaging more attention than all the rest put together, and its successful career is already beginning to excite jealousy, but we hope that instead of feeling jealous others will follow the good example which has been set them, and endeavour to extend the sphere of action, and induce buyers to enter our markets and bestow their favours broadcast. There is plenty of room for improvement both in the demand and prices, and the one will necessarily accompany the other, and as business has been so extremely limited for such a long time past it is only reasonable to expect an improvement. It may be slow and gradual, but it will be strange indeed if there is not a steady expansion of trade, and an improving tendency in prices. The commerce of the world has a better chance of progressing since the affairs of Eastern Europe are in a fair way of settlement. It could scarcely be expected in an important political transformation like the partition of Turkey that everything could be arranged at the Congress. The basis only was agreed upon, and the question of details left to be carried out by subordinates who naturally have a little contention over various knotty points, and attempt to get the better of one another, and these little outbursts of feeling and disagreements being published from time to time tend to revive the old question, and occasionally give a serious aspect to the turn of affairs, but as the points are gradually disposed of one after another the course becomes clearer, and there is less apprehension of danger. None of the European nations being in a state for war desire peace to be disturbed, but, on the contrary, peace is essential to the restoration of commerce, and it is not only necessary that there should be no open hostilities, but an absence of rumours of war, and no cause for any feeling of uneasiness on account of our foreign relations. There must be a perfect rest from all disturbance, whether of a real or imaginative character, and when once undoubted security is established there will be a renewal of confidence.

Whatever operations buyers may wish to engage in cannot be effected at a more propitious period, and the advantages which our markets now present are so exceptional that it would be running a very great risk indeed to delay the giving out of contracts. When metals are cheap buyers can better afford to purchase in advance of their requirements, for if they have to take delivery a little before they are quite ready still it is better to do so, and to be on the safe side, for the higher prices which will ensue would very soon wipe off the expense of storage. There are complaints all round on the part of sellers and producers that current prices are too low; they have patiently borne with them up to the present time because there was uncertainty and fear spreading in every direction, but there are few, we think, who would be inclined to deny that the various nations are quieting down, and turning their attention more to industrial pursuits than formerly. Nothing can be more conducive to the welfare of England, and every other civilised power, than for the people to forbid their Governments going to war upon any little frivolous pretext. War ought only to be resorted to when the existence of the State is imperilled. There is too much domineering displayed by large powers over small kingdoms, for as they know they possess the power of coercion they are apt to overlook the injustice of their cause. Why should England be so cruel and unjust as to go to war with Afghanistan merely to satisfy some military whim in regard to the recalcitrance of the frontier?

If we could effect the extension of our border line in a fair and honourable manner all very well, but to make it a cause of war will be a most iniquitous proceeding; but can the Queen of England be induced to declare war against our neighbours for such an unhylo purpose? We doubt whether the sting which death has left within her own family circle will not cause her to hesitate about inflicting that same sting in the hearts of many an Afghan family. Our frontier has proved sufficient up to the present date, and is considered by the best authorities the best that can be had, and one would think it time enough to talk of rectification when it is assailed; but although it is admitted that there is no fear of invasion of India from that quarter, yet we are on the brink of war merely to enable us to advance our military stations. We condemn Russia for intrigue, and for seeking after territorial aggrandisement, when we are all the while copying her example. Englishmen are now becoming disgusted with such abominable and unprincipled proceedings; and in the event of our Government declaring war against the Amirs of Afghanistan there will be such an outburst of righteous indignation as will probably shame them out of office. The honour of England is sacred to Englishmen, and they will not sanction the acts of a Government that says one thing and means another.

TIN.—Irrespective of the reduced stocks, diminished supplies, increased consumption, and every other favourable feature in connection with our market, there exists an irresistible power which has complete mastery of the situation, and equal to the task it has taken in hand—that of considerably advancing the market value. Whether the movement is legitimate or illegitimate, justifiable or unreasonable, wise or foolish, is not a point so much for consideration at the present time as the matter of fact that there is a scarcity, it may be real or artificial, that can be best ascertained by reference to figures, which have been already given; but one thing is certain, that 13s. per ton has been recovered, and the market continues to assume an upward tendency. The eagerness displayed by some owners to realise has divested them of all power, and has greatly helped to raise the present controlling power, which if properly wielded is all powerful to make the price whatever it pleases. The immediate future is entirely under the control of this power, and higher prices must, therefore, be looked for. Buyers may speculate if they like upon the ultimate issue, and allude to it in disparaging terms as being too sudden to last, and having no sufficient foundation, but they had better be careful what liberties they take with the market, otherwise they may find that they will have to pay very dearly for their sport, and although it may be interesting to speculate upon the possible losses of others, yet it is rather unprofitable to delay purchasing on that account when the price is rapidly advancing.

Consumers may dismiss from their minds that the market is in the possession of weak hands. That is a false idea, for it is held by a strong party, and it would be absurd to imagine that important dealers, who are thoroughly well aware of what they are about, would attempt to secure the greater portion of the stock if they did not see their way perfectly clear to realise a very handsome return by the operation. There are few people just now who will venture anything at all, consequently the inducement to operate must have been very great indeed to clear-headed business men, who would fully calculate and well weigh the chances of success before committing themselves to an undertaking of no small magnitude, and involving the immediate outlay of several thousands of pounds. To lift a market during a period of great depression is no easy task, and it speaks volumes for the tact and ability displayed, but without ample means at command it would have been impossible to have done it, and unless the capital had been forthcoming it would never have been attempted. There is no want of means or capacity in the

present organisation, and as there are two indispensable requisitions for the management of a market, and they constitute the present controlling power, it is perfectly evident that after venturing this large amount of capital with the express object of raising prices the intention will be carried out in an efficient and determined manner.

If there were any doubt about the power to effect an advance then it might be questionable, but as there is not the least sign of weakness or incapacity on the part of those who have command of the market, but on the contrary a full measure of strength and sound sense, there is every probability that they will strike while the iron is hot, and they should strike rapidly and with force. If anything will impart tone to the market it is the introduction of abundance of capital to buy up the weak lots offering in the market. The supply cannot be suddenly augmented to any serious extent, neither can the consumption suddenly cease, and a large quantity must be absorbed every month whatever the price may be, and the scarcity may possibly cause sellers to demand exorbitant prices, for sellers will probably avail themselves of their present advantages, and not allow the time to slip by unimproved. The English smelters are doing their part to sustain the market. The present movement has been very successful up to the present time, for there were many difficulties to encounter. In the first place the downward tendency had to be arrested, and in the next place a start had to be effected; the whole market, in fact, had to be entirely reversed, and it has been very cleverly and admirably performed. Sellers have every reason to congratulate themselves upon the improved position of the market, and if producers will only avoid falling into the same errors they previously made they will hereafter realise a higher price for their tin, and surely every sensible person after seeing the depreciating effect of an over-supply would not readily again commit the same blunder. If future supplies are moderate, and regulated more in proportion to the demand, there will be no fear but what good profits will be realised.

It is, therefore, in the interest of sellers to give support to the present movement, and not to check it by unduly pressing forward supplies; they should rather hold back than show any indecent haste to sell. A large venture has been made with an evident intention of making profit out of the business, but who would expect that it would be undertaken with any other motive; nevertheless it should not arouse the jealousy of other sellers, as they are considerably benefited by the enhanced rates, and they ought to feel extremely thankful for the benefit derived from it. The markets abroad will undoubtedly quickly respond to the rise on this side, and the whole tin-producing districts throughout the world stand much indebted to the able and courageous operators of the present movement, for in the midst of the greatest gloom and despair it is certainly most gratifying to know that there are still left some few rising and enterprising houses who are not afraid to embark in a business which possesses a fair prospect of terminating satisfactorily and successfully, and a few more such firms would be highly appreciated in the metal trade just now.

The slight relapse which has occurred in the market this week we do not attach the slightest importance to as affecting the coming value of this metal. It is a mere incidentarising out of the sudden change which has taken place, and it is the natural consequence of a rapid rise. Some few stray lots are almost sure to be scattered about in various places, which cannot be secured until a lull ensues, and then the holders, fearing to miss their market, come forward in hot haste and heedlessly expose their holdings. There are others also who think that the full rise being attained, it will be an excellent time to "bear" a little, for they are more strongly imposed with the old price than they are with the new one; but this is always the case with the fluctuations of markets, whether they be up or down—it takes time to reconcile people to the change. There are likewise some who are ready to pooh pooh everything, however important a movement may be, and as soon as ever the slightest turn occurs in the price they chuckle and crow, and pretty well go mad with delight, and declare that they said all along how it would be but a nine days' wonder. Then, again, there is the insinuating party who quietly remarks, if there had been any foundation for a rise surely the grand operators would not abstain from buying, and stand passively by, allowing the market to fall away from 65/- to 62/-; but we might go on adding an infinite number of different views of the various members of the trade which might prove entertaining, but probably of little value, and in this latter view we entirely concur, for the matter must be looked at quite in another way, and simply treated as a means to an end.

It may be a little foxy to have recourse to artifices, but it is sometimes judicious, and not unfrequently pursued when the control of the market is aimed at; besides, everyone is supposed to look after his own interest, and who is going to make a market for another? The same power that put the price to 60/- could make it 70/- or 80/-; and can it be possible that anyone disbelieves in the final accomplishment of the work; and that the great power which effected in an incredible short space of time an advance of 13/- per ton cannot now keep up the market. Buyers beware lest you be beguiled, and fancy you have only to wait to be able to buy cheaper. It is not often that we speak in so positive a manner, but this we will say, because we entertain the strongest conviction on the point, that any delay in buying will be fraught with great danger, as higher prices most assuredly prevail. Whether the market will be temporarily kept unsettled for certain obvious reasons we will not pretend to divine, but the upward movement must and will go on before very long. Time will very soon show whether our opinion is well founded or not.

IRON.—To declare the dulness of the market week after week is a melancholy task, but we suppose there is no alternative, as we are bound to make a faithful record; our spirit of endurance may be tried, but we wait in patient hope that the dulness will hereafter be succeeded by a revival, and that future prosperity will obliterate all traces of adversity. The present period, however, is one of the most sorrowful and distressing, and demands the serious consideration of the whole trade. We are now in the midst of the depression, and it is bearing heavily upon our market, and all in connection with it, but what is more to be deplored than anything else is that prospects are so very discouraging, and the end of the depression cannot be foreseen. The trade has got into such a low and feeble state that it will be no easy matter, and will occupy no little time, in bringing it back to its normal condition, and whatever the works will do, and however the workpeople will manage during the ensuing winter, which bids fair to be a severe one, is grievous to contemplate. Orders are so few, and work is so scarce, that there will barely be sufficient support to keep them going, and we fear that many works will have to close, and the men will have to seek employment elsewhere. The best of the year has now closed, and the best has been bad indeed, but if the best has been bad, what may be expected of the dullest and worst part of the year? The stern reality has to be faced, but how can it or how will it be met? The general state of the country forbids the indulgence of sanguine anticipations being formed, and in all probability there will be no recovery in the home trade. The Government are unlikely to give out additional contracts, for they are already running short of funds, and the nation is groaning under the burden of excessive taxation. The Indian Government is also too poor to proceed with any considerable extension of the railway system, and and many of the foreign Governments are just now inconvenienced by empty treasuries; therefore, it would be unwise to reckon upon anything like an ordinary winter demand, for there is every appearance of it being one of unusual dullness, and below the average trade of former years.

The prices of some makers are decidedly low, and there would seem very little room yet for any lower rates. Where the works are advantageously placed—and there are some few in England which, fortunately, are so—but the majority are subject to heavy carriage rates—the can fairly compete with the foreign producers. The good ordinary Staffordshire quality, or what is commonly known as that make, or bars can be bought at 6/-; hoops, 8/- 10s.; and sheets, 7/- 12s. 6d., f.o.b. Liverpool, but it is in the inferior kinds of iron, and particularly Welsh, which have a long distance, and, consequently, a heavy carriage rate to be reckoned on, that stands at a disadvantage in comparison with Belgium. But although some of the Belgian works may be favourably situated in regard to delivery, yet there are others in that country which are subject to an inland carriage. The freight on iron across from Belgium to London is about 4s. to 5s. per ton only, and if a line of steamers could be worked between Wales and London at the same rate it would help to reduce the difference in price between the two makes; but Welsh even then would be at a disadvantage according to present quotations, and the price ought to be at once quoted down to 5s. f.o.b. London, and always kept rather below the Belgian price than above it. It has been our aim for a long time past to endeavour to bring the commonest kinds of iron to level with those of Belgium, for it requires no great amount of foresight to discern that the trade would not be regained until that took place. But although the price has been considerably reduced, and quotations are now far more reasonable than they were a year or two ago, yet the fall is not sufficient, and it has been effected in such a sluggish and slovenly manner that the good that would have been realised at one time by declaring a sensible drop is now entirely forfeited. Sellers have been in hesitation as to their neighbours in this respect, and they could clearly see that our neighbours had their opportunity, and they have been carrying off the greater part of our shipping trade in manufactured iron. The prices of their bars, angles, ties, girders and nail rods, wire, &c., have been regularly kept below the quotations of English houses, and, consequently, they have secured the principal orders that

were to be obtained. Now, it is evident that our trade has been badly managed during the past few years to suffer this sort of thing to go on so long, and which has finally brought it to the verge of ruin, and inflicted immense deprivations and unnecessary hardship upon many industrious and hardworking honest men.

It is time that such folly was laid aside, and that men would act more wisely in future, but the trade cannot be properly restored unless there is reformation and reorganisation throughout the whole system, for the present system is found to be defective, and does not answer. It is useless, and it would be madness to retain it. Another form of management must be substituted for that which is obsolete and unsatisfactory, otherwise disputes, strikes, and lock-outs will continue, and completely upset and destroy the trade. There must be justice and equity in place of injustice and exactions. The terms of agreement ought to be precisely defined and perfectly adjusted that every man should receive his just recompense, so that no grounds for complaint could possibly exist. There will be no settlement or security until the men are engaged upon the mutual principle, and are made to share in the fluctuations of the markets. There are ways of binding the men as much as the masters, and it is to be hoped, for the sake of preserving the trade to the country, that there will be a willing spirit displayed on the part of the employers and employees to come to a final and just settlement, so as to prevent further interruptions occurring when the trade begins to improve. The Scotch iron trade has been dull, and the price of mixed numbers is quoted at 43s. 3d. cash.

SHIPPMENTS.

For the week ending Nov. 9, 1878. Tons 8,547

For the week ending Nov. 10, 1878. 8,523

Increase ..... 24

Total decrease for 1878. 52,355

Imports of Middlesborough pig-iron into Grangemouth:—

For the week ending Nov. 9, 1878. Tons 7,920

For the week ending Nov. 9, 1878. 3,755

Decrease ..... 4,135

Total decrease for 1878. 6,387

FURNACES.

In blast Nov. 10, 1877. 88

In blast Nov. 2, 1878. 88

L.R.A.D.—Quiet, but sellers are becoming cautious in effecting sales at these low prices.

COPPER.—The momentary obscurity into which this metal has fallen seems to have stirred up holders, and impressed them with a sense of their duty, and since they have taken a greater interest in their market it has caused others to bestir themselves, and brought forward a few buyers. Up to the present week the heaviness of the market continued, but rumours began to circulate that some friend in the North was busy making speculative contracts, and like sensible men holders advanced their rates, the better to realise the true value of their holdings, and which has resulted in 60/- 10s. being paid for Chill bars to arrive. We hope and if he is prepared to go to this extent he will well earn and prove a worthy successor of the late copper king. If holders will continue to show confidence in their market buyers may be induced to come forward, but it can scarcely be expected that buyers will display much confidence if they see that sellers possess no confidence in the stability of the market.

QUICKSILVER.—The importers reduced the price on Monday to £12s. 6d., at which good sales were made. The demand is now, however, very light, and the tendency of the metal continues still downwards.

THE IRON TRADE.—(Griffith's Weekly Report).—Friday evening, The Glasgow market has been very quiet during the week. On Monday, limited business was done in G.M.B. warrants at 43s. 6d. to 43s. 5d. cash; the price has varied very little from day to day. To day the market opened with sellers at 43s. 3d., closing this afternoon rather firmer, with buyers at 43s. 3d., a fall this week of about 3d. per ton. We quote makers' No. 1 iron:—Gartsherrie, 51s.; Coltness, 52s. 6d.; Calder, 52s.; Langloan, 53s. 6d.; Summerlee, 49s.; Monkland, 45s. 6d., f.o.b. Glasgow; Giengarnock, 49s.; Eglington, 45s., f.o.b. Ardrosson; Shotts, 53s., f.o.b. Leith. We cannot report a large business on our market this week. There are numerous enquiries for iron for shipment, and a fair number of orders have been placed; but, on the whole, the market must be reported quiet. There is a steady demand for the leading Staffordshire makes, and orders are constantly being sent from this market to the makers of best Yorkshire iron.

On the West Coast the trade in the raw material is quiet, but prices are now so unremunerative that the smelters would blow out rather than reduce prices. In Cleveland the trade is very quiet; the Middlesborough market, on Tuesday, was flat, without any change in prices. The steelmakers have certainly the best end of the trade here. Bolehole, Vaughan, and Co.'s, great Eston Works are turning out immense quantities of steel rails every week. In the South Staffordshire district, the Earl of Dudley's, W. Barrows and Sons, and the other leading firms are receiving a good supply of orders, which keep their works well employed, but some of the second-class makers are wanting work badly. A large quantity of Lincolnshire and other pigs are being sold in the district, but the makers of native iron (notwithstanding the fact that only 40 furnaces are blowing in the district) have difficulty in disposing of their make. At Birmingham yesterday only a small business was done either in pigs or manufactured iron. There is a slight improvement in the tin-plate trade.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence and Co. (Nov. 9).—ALUM: Loose lump, £1. 7s. 6d. to £1. 10s.; ground, 7s. 6d. Arsenic: Best white powdered, 8s. 10s.; Borax: Refined, English, 36s.; Copper: Green, 52s. 6d.; white, 8s. 7s. 6d.; Copper Sulphate, 19s.; Nitrate

2; Pateley Bridge, 3½ to 4. Roman Gravels shares, 6 to 6½; the sampling for the month is 180 tons of lead and 25 tons of blende. Tankerville, 3 to 3½. South Darren, 1½ to 2; the ore sold on the 11th (40 tons) realised 584/- West Tankerville sold 15 tons of blende for 5d. 7s. 6d., and will sell 25 tons of lead for the month. Glenroy, 10s. to 15s. South Roman Gravels, 2s. 6d. to 5s.; the agent reports the lode as presenting every appearance of becoming profitable as depth is obtained. West Chiverton, 20s. to 30s.; Aberdaunant, 3s. to 5s.; Betts-y-Coed, 1 to 1½; Aberllyn, 10 to 12; Clementina, 1 to 2s.; D'Eresby Mountain, 30 to 40; Caron, 2 to 2½; Grogwinion, 2½ to 3½; Harlington Moor, 1½ to 2; Mawston, 50 to 60; Red Rock, 2 to 2½; Frongoch, 2½ to 3½; St. Harmon, 2 to 3; West Wye Valley, 2½ to 3½; Wye Valley, 2 to 2½; Mynydd Gorddu, 2s. to 3; the mine has sold another 20 tons of lead, at 10s. 10s. per ton. West Pateley Bridge, 1½ to 2½; Rookhope, 7s. 6d. to 12s. 6d.; South Cwmystwith, 2 to 3.

**FOREIGN MINES.**—Blue Tent, 2½ to 3; Hultafall, 3 to 3½; Plaserville, 2½ to 2¾; Chontales, 12s. 6d. to 15s.; the accounts for the month of September are more favourable than for a very long time, and it is to be hoped that the mine has now turned the corner for good profits. The gold returns for September are 471 ozs., valued at 1200/- cost, 597/- profit, 602/- Javali, 6s. to 8s.; the returns here is 432 ozs., valued at 1170/-, at a cost of 985/- Cape Copper, 2½ to 2¾; Colorado, 1½ to 2½; Birdseye Creek, 3 to 5; Don Pedro, 2s. to 10s.; Eberhardt and Aurora, 3½ to 4; Exchequer, 4s. to 6s.; Frontino and Bolivia, 1½ to 2½; New Zealand Kapanga, 15s. to 20s.; Last Chance, 10s. to 15s.; New Quebrada, 1½ to 2½; Port Phillip, 10s. to 12s. 6d.; Richmond, 9s. to 10½; St. John del Rey, 25 to 29s. Santa Barbara, 30s. to 35s.; we learn by telegraph that the profit for the month of September is 720. 15s. 9d. Particulars next week.

The Market for Mine Shares on the Stock Exchange has shown no particular change during the past week, though the feeling as to the future is decidedly better; there is but little business doing, and prices are quite nominal, with the exception of some half-dozen stocks, such as Richmond, Rio Tinto, Cape, and a few others. In British mine shares Marke Valley have been dealt in to-day at 1½, and Wheal Grenville at 2 and 2½. In foreign mine shares Colorado United have been done at 2 and 2½, and Richmond at 10s. and 10, and the quotation, which on Thursday was slightly better—10 to 10½—has receded to the former figure of 9½ to 10½, at which they close.

The discovery of gold in South Wynaad (India) has attracted a good deal of attention during the past few days, the Times' announcement of the discovery there of workable gold deposits by Mr. R. Brough Smyth, for many years Secretary for Mines in Victoria, Australia, having been followed by definite statements, as well as rumours, which lead to the anticipation that the co-operation of British capital will be asked for their development. It appears that Sir Andrew Clarke, the Public Works member of the Viceroy's Council, visited Wynaad last February, and having, from his Australian experience, judged the country highly auriferous, he, with the sanction of the Viceroy, invited Mr. Brough Smyth, whose eminence as a mining engineer is beyond question, to bring to India some practical Australian miners for the purpose of exploring and testing the quartz reefs. Mr. Smyth has already discovered, in an area of 25 miles by 13, 90 outcrops of ore reef with a thickness of 3 to 4 ft., yielding from a few pennyweights to 200 ozs. per ton. The richer stone reefs, when broken, a fine and coarse gold, with jagged pieces as large as pens. Some excellent samples of Wynaad gold have been already received in this country by Mr. Thomas G. Gillespie, for whom they are at present being worked up by Mr. E. Culver of Clerkenwell. The gold is pronounced by him to be of good quality, similar and very little inferior to Australian samples, and its discovery, if properly taken advantage of, will no doubt go far to bring back prosperity to a district which lately, from bad seasons and other causes, has had more than its share of misfortune. The Wynaad district is situated in the Madras Presidency, upon a range of hills which may be called the first slopes of the Neelgherry Mountains. Davala, the spot where the latest operations have been conducted, is almost at the foot of the giant leading to the well-known sanatorium of Ootacamand. Wynaad has hitherto been principally known as a coffee producing locality—a large and increasing field of enterprise, engaging the attention of a large community of European planters and many thousand coolies drawn from the neighbouring province of Mysore. It is much to be regretted that the announcement was not received a month sooner, as it appears that the larger part of the mining rights have been secured by the Bombay branch of a firm—Messrs. Smith, Fleming, and Co., of London-Hall-street—which only went into liquidation in the Court of Bankruptcy on Nov. 1; these mining rights might have saved them from the humiliation of insolvency; as it is, the creditors' loss may be less than it was anticipated it would be. In Mr. R. F. Harding, the liquidator and receiver states, Messrs. Smith, Fleming, and Co. have for months past "been advised by their Bombay firm, Messrs. William Nicoll and Co., that they have secured all the mining rights (except some held by planters) in the Nelliambur districts, and the greater part of those belonging to the Rajah of Nelliambur, the reefs which have formed the subject of Mr. Brough Smyth's investigation being comprised in this area. They also own a coffee estate on the important river Sepetee, through which a reef runs," it is difficult to understand why bankruptcy could not have been avoided. Numerous specimens of the South Wynaad quartz have been received by the London firm, some of them very rich with veined gold, selected by an associate of the School of Mines, who was employed by Messrs. Smith, Fleming, and Co. to visit the districts, and who told me he had broken them off the reef himself or seen them broken off in his presence. The climate is described as healthy and pleasant for Europeans during nine months of the year, but somewhat feverish during the other three months, and Mr. Gillespie states that from personal experience and residence he endorses the opinion expressed as to the climate, while for scenery and fertility the district is not easily surpassed.

The Colonial Trust Corporation is still, it is believed, capable of resuscitation, although from the circular of Mr. J. M. Gadd, the present manager, issued on Wednesday, much still remains to be done. It appears that from the form of the debentures there is a very great question whether the holders have any legal remedy against the uncalled capital. Mr. Gadd's circular states that arrangements have been completed with Shore's trustees for paying off the first mortgage on the Meersbrook Estate, which practically secures to the committee, through the assistance of the said trustee, the carriage of this valuable property, upon which directors have advanced large sums of money on very inadequate security—a fifth mortgage. Negotiations are also pending with the same trustee for the equity of redemption of the Meersbrook and Lindridge Estates, and for new leases of the Brynkail Colliery and Dyllym Mine Estates, in favour of the committee, which by this arrangement is much assisted in the proposed plan of resuscitation. The shareholders and creditors are earnestly advised, in their own interests, to support the committee for resuscitation, and enable them to take the corporation out of liquidation at once, otherwise the shareholders will be called upon for every shilling of uncalled capital, the bulk of which will be frittered away in legal and litigation expenses, to the prejudice of the creditors. The resuscitation, Mr. Gadd continues, is no doubt contrary to the wishes of the late directors, legal adviser, and provisional liquidator, and they may probably say that "there is nothing to resurrect." In their hands, and with the objects they have in view, it is true, there is not, but in the hands of the committee, with the valuable considerations at their disposal, there is a great deal to resuscitate, which will produce a considerable sum of money, and united action on their part will secure this desirable end, instead of a serious and most disastrous loss. Surely an estate upon which the late directors and legal adviser first and last advanced about 90,000/- on a 6d. stamp a fifth mortgagee, and without the equity of redemption, is worth securing as first mortgagees with the equity of redemption.

St. John del Rey, 285 to 295; the latest telegram from Morro Velho, received to-day (Friday) states that the produce for October was 35,000 oits., the value of which at 7s. 9d. per oit. would be 25,562. 10s. The ley of the ore was 6½ oits. per ton, or 8½ oits. per ton by old measurement. Detailed advices, dated Morro Velho, Oct. 18, have also been received to-day. There have been no special interruptions, the scarcity of water, and mineral output have been unfavourably influenced by notwithstanding a reduction of cost of nearly 700/-, is the lowest for the current year. The gold has duly arrived. Don Pedro del Rey, 3½ to 4½; the telegram received to-day states that the produce for October was 1700 oits., the value per ton is about 660/- Santa Barbara, 1½ to 1½; telegram just to hand states the profit for September at 720. 15s. 9d.

Richmond, 9s. to 10½; the meeting on Wednesday, a full report of which will be found in other columns, expressed full confidence in Mr. Probert, and at the conclusion of his reply to the charges of the State Committee of Investigation, the resignations of Messrs. Stewart, Maybury, and Pulbrook were accepted. It is much to be regretted that Mr. Probert the better able were his supporters to permit Messrs. Stewart, and the 800 shareholders, of whom a large proportion were absent, will be with the management have been guilty of indiscretion in their correspondence, and, therefore, there should have been no partiality. Mr. Pulbrook writes that he endeavoured to say—"As you have adopted Mr. Probert's statement without giving me an opportunity of being heard to expose the fallacies contained in it, only remains for me to tender my resignation, and I hope that before you will not, like the shareholders in the Emma and Flagstaff Mining Companies, have cause to repeat your dislike to being told the truth in time to prevent disaster."

The advices from Arizona indicate that considerable excitement is taking place in the Pioneer district—a district which has, it is said, proved the richest and most productive of any yet discovered in the territory. There it is that the well-known Silver King Mine is located. A mine that has already paid over \$500,000 to its owners since incorporation, and nearly \$500,000 in dividends to its shareholders since.

Besides these dividends it has paid for its machinery and development out of revenue. Like many other mines, it was passed by and neglected for years. A much travelled trail passes right over the property, yet the mine remained unclaimed and not located until about four years ago. Eberhardt and Aurora, 3½ to 3¾; the superintendent, Oct. 23, states that the mine is looking well, and that he will take out a great deal of ore between that and the end of the month. Colorado United, 1½ to 2½; the note received from office as to the progress made says—"Mine unchanged; will close mining 9th; mill 16th; estimated run 1200 tons bullion 6400/-"

Flagstaff, 2 to 2½; two petitions to wind-up this company came on for hearing last Saturday, and it was agreed between the council for the company and the petitioners that they should stand over for five weeks upon the terms that the directors held a meeting of the shareholders within a month.

The Market for Hydraulic and Gold Washing shares remains unchanged. There has been a slight demand for Birdseye Creek and Blue Tent shares at quotations.

Hultafall, 3 to 3½; satisfactory advices have been received this week from the dressing department, and the work of reorganising the floors is nearly completed. One of the directors is still at the mines superintending the work.

Lead Mines have been in better demand, and in many instances higher prices have ruled. Van, 15 to 16; the usual monthly report appears in another column, and is very satisfactory. The sale on Thursday—500 tons lead, and 150 tons blonde—realised 5480/- 2s. 6d. Grogwinion, 2½ to 2¾; good progress continues to be made at all important points, and the new discoveries in the deep workings are opening out in a satisfactory manner for future returns. Frongoch, 2½ to 3½; there have been numerous transactions in these at advancing prices. It is said that everything is being pushed forward rapidly at the mine, and no time will be lost in carrying out the proposed alterations in the system of working, so as to utilise water-power in place of steam, whereby a great economy will doubtless be effected. The new shaft is being sunk with all possible dispatch, and the various cross cuts and extensions of the levels into new ore ground are also receiving proper attention. It is considered that no better time than the present could possibly be selected for entering into development work of this important character, inasmuch as the wages now ruling in the district for first-class miners are but a trifle over 17s. per week, and all mining materials are also much cheaper than they have been for many years past. Such circumstances combined tend greatly in favour of a large mine like Frongoch, and much important work will no doubt be carried out during the current dull times, which must prove of great value in future years. Caron, 2 to 2½; the wintry weather has to some extent delayed ore dressing, but fair progress is being made, and a parcel will very soon be sold. Wye Valley, 2 to 2½; no fresh news this week, but the deep levels are still looking well. West Wye Valley, 2½ to 3½; the rise above the bottom level is in a nice run of rich ore ground, and giving good returns of lead. Other points without material change.

Mineral Corporation of Great Britain, 10 to 11; the detailed report of the agent promised last week is even more encouraging than was anticipated, and contains the important announcement that the preparation of mineral for market has actually commenced, and that at the Hafna Mine good progress is being made with the washing of the lead. As to the mine itself is looking more promising at every point. In clearing up the shaft some good arches of ground left by former workers have been met with that will pay well for stopping within a fortnight or three weeks. The leadstuff in course of dressing is turning out fully equal to the expectation of the agent, who states that they will push on the dressing of lead as fast as possible, so as to be ready for crushing as soon as the reservoir is made.

Mynydd Gorddu, 3 to 5 nominal, although there has been no dealing, owing to the price being so wide. On Thursday a further parcel of lead was sold to Messrs. Sheldon, Bush, and Co. at 10s. 10s. per ton. This raises the sales to 60 tons within the month, two parcels of 20 tons having been sold on Oct. 19 and Oct. 30 respectively. This is naturally regarded as promising for the mine, which is looking encouraging throughout. All the machinery is working well.

Pant-y-Mwyn, 3½ to 4; within the past fortnight 150 tons lead ore have been sold, at prices ranging from 10/- to 15s. There are still some 40 tons on the dressing-floors and in the bin, and there will be another sale in the course of a week. The new lode at Modlyn shaft, which we cut some three weeks back, has increased from 6 to 18 in., and its surface has the beautifully polished appearance which in this district is so well known to be the precursor of great and lasting deposits of lead. British Silver-Lead, 3 to 4; the sinking of No. 1 shaft continues to open out immense reserves of ore as depth is obtained, and having already proved the vein for upwards of 100 fms. in length, stopping the ore away will be commenced when a little deeper. They are clearing an old sump east of shaft, and expect to find splendid ore in the bottom. Dressing will be commenced next week. Pateley Bridge, 3 to 4; Rake vein in the 30 east continues of the same value as last reported. In the 2½ the end is improving, and the level is apparently entering into the run of ore ground now being laid open in the 30. Lump vein is also looking well. Other parts of the mine unchanged. West Pateley Bridge, 1½ to 2½; the details will be found in another column.

West of England Compressed Peat, 2 to 2½; it is stated that the 8 per cent. dividend paid on September 10 will be followed by another at not less than the same rate on December 10, being the results from the company's charcoal work. It would be convenient for statistical purposes if it were stated upon what amount of capital these percentages are to be calculated, as the bare statement of 3 per cent. per annum permits of no calculation being made as to the profits actually realised in each, owing to there being some fully paid and some partly paid shares. Mr. Howard, whose process is used by the company, states that the whole of the capital was allotted within a month of the prospectus being issued, and that the shareholders consist of a strong, influential, and large body. The line, the first of which was recently turned by the High Sheriff of Devon—Mr. H. C. Hamlyn—assisted by the Mayor of Exeter, is now being constructed to make a junction with the London and South-Western Railway at Bridestow Station, from which point the line extends nearly 4½ miles into the centre of several thousand acres of high-class peat, and in the immediate locality of which there is an abundant supply of iron, china-clay, granite, and tin lodes, none of which could hitherto be brought down the mountain (which the railway ascends) for the want of roads, but the railway meets that difficulty at once at a small price. The applications for the fuel are far more numerous than it is anticipated we can supply; there being no coal in the West of England, will cause local consumption to be great.

Subjoined are the closing quotations:—  
Carn Brea, 35 to 37; East Caradon, ½ to ¾; East Van, 1½ to 2½; Glenroy, 3½ to 5½; Great Laxey, 14 to 18; Leadhills, 1½ to 2½; Marke Valley, ½ to ¾; Pateley Bridge, 3½ to 4; Penstrehul, ½ to ¾; Roman Gravels, 6 to 6½; Tankerville, 3 to 3½; Van, 14 to 16; West Chiverton, ½ to 1½; West Pateley, 1½ to 2½; Wheal Grenville, 2 to 2½; Almaden and Trito, ½ to ¾; Birdseye Creek, ½ to ¾; Blue Tent, 2½ to 3½; Cape Copper, 28 to 29; Cedar Creek, 1-16ths to 3-16ths; Chontales, ½ to ¾; Colorado United, ½ to 2½; Don Pedro, ½ to ¾; Eberhardt and Aurora, 3½ to 3¾; Exchequer, 3-16ths to 5-16ths; Flagstaff, ½ to ¾; Frontino and Bolivia, 2 to 2½; Hultafall, 3 to 3½; Javali, ½ to ¾; Kapanga, ½ to 1; Last Chance, ½ to ¾; New Quebrada, ½ to 1½; Oregon Preference, 2 to 2½; Pestarena, ½ to ¾; Plaserville, 2½ to 3½; Port Phillip, ½ to ¾; Richmond, 10 to 10½; St. John del Rey, 280 to 290; South Aurora, ½ to ¾.

**COLLIERS.**—There is no change to report in the market for these shares. There are naturally few holders who care to part with their securities at low figures just at a time when the prospects of improvement are becoming more visible and nearer, and on the other hand there has long been what appears to us a most unreasonable prejudice among outsiders against investing in colliery enterprise. It is, perhaps, useless to repeat the views we have so often expressed on this subject, but a little while hence we shall, no doubt, see a feeling exhibited exactly the reverse of the present over-cautiousness, when prices will go up, and investors will regret that they should have lost a good opportunity of embarking in genuine collieries, while others as foolishly confiding then as they are at present unnecessarily suspicious, will throw themselves into rotten schemes and lose money which might now be well and safely laid out. Collieries owning house and shaft qualities of coal are, of course, more and more busy every day, and although prices are low, a fairly remunerative business is being carried on, especially in those districts from which London and the other largest towns draw their supply. In some quarters there is an improved demand for steam fuel, and manufacturers are taking a larger quantity. Several large contracts for iron have recently been placed in England and chiefly in South Wales—hands, and have served to give a little extra impetus to the coal trade of South Wales. Continued attention is being directed both here and on the Continent, and in America, to the subject of anthracite coal, and there is a fair prospect of the markets soon finding that they have formidable competitors in a market where formerly they were nearly the only buyers.

The Lancashire coal trade is a trifle better, and it is believed that improvement will continue. In connection with this district it may be remarked that the shares of the Chapel House Company seem to be much below their proper value, considering the trade the company is doing, and the almost immediate prospect of a large increase in the output. The machinery, too, which has been recently erected is of a most massive and valuable character, and all the new works have been carried out in such a manner as to render the colliery one of the finest in the kingdom. The ordinary shares are quoted at 3 to 3½, and the preference at 5 to 5½. Alltai shares remain at 3 to 3½. Lay Hall at 6 to 8; it is reported that the output at this colliery is now about 400 tons per day. Cardiff and Swansea close at 3 to 4. New Sharston, 3 to 4. Newport Abercarn, 4 to 4½. Ynyscedwyn, 10 to 10½. Thorp's Gawber, 1½ to 2.

**EAST LOVELL.**—The lode being sunk upon in the new limits improves, and an important discovery is looked forward to.

**GREAT HOLWAY.**—Some excellent blends and lead ores are being raised here. The erection of the new machinery proceeds satisfactorily.

**WEST PATELEY BRIDGE LEAD MINES.**—At the general meeting of shareholders of the company, held under the presidency of Mr. W. Baxter, chairman of the company, many facts were elicited strengthening the opinion of those best able to judge, that under the spirited development which has marked this company's progress such results will be early realised as to endorse every sanguine anticipation. Rock drills are to be employed to reach the 12 or 14 well-known veins traversing the mines, while in the Craven Cross section—described as the key of the property—the prospects are held by the manager "to be most flattering." Upwards of 130 fms. of

shaft have been sunk, and 240 fms. of levels driven; tramways laid underground and at surface, a Robey's engine erected, crusher, dressing-floors, &c., and five reservoirs made. The expenditure on the mines has amounted to 4000/-, leaving an available balance for future working of 9118/- a financial position, the Chairman remarked, "occupied by very few, if any, similar undertakings." Details of the meeting appear in another column.

**WEST CRAVEN MOOR.**—A report of the meeting, held on the mine, will appear next week. The mine is looking exceedingly well. The various stope and ends will produce on the aggregate over 9 tons of lead ore per fathom.

**TANKERVILLE (Lead).**—A most important and satisfactory report received yesterday (Friday) at the company's office will be issued to the shareholders early next week.

**LEADHILLS MINING AND SMELTING COMPANY.**—In another column we publish an account of the half-yearly general meeting, which will be read with interest not only by the shareholders but our readers generally, inasmuch as the Chairman referred to the great depression in the price of all metals and minerals and the importance of our Legislature taking the question of imports and exports into their serious consideration.

**COMBMARTIN.**—The caunter lode in the adit level, driving north-west, is 4 ft. wide, 2 ft. of which is mudic, impregnated with fine lead, and showing a most favourable appearance for a deposit of lead. The ground is easy, the price of driving being 2½. 15s. per fathom. The adit cross-cut is being extended beyond this lode, with the expectation of intersecting other lodes. The ground in the present end of the cross-cut is full of veins of quartz, mudic and fine lead.

**FRONGOCH.**—It may not be generally known that this mine is one of the most remarkable amongst the many rich mines which have made Cardiganshire so famous as a mining district. The records of the mine show that since the year 1845 it has regularly sampled and sold an average of a little over 1200 tons per annum, the largest amount raised in one year being 1770 tons in 1882, the lowest about 800 tons in 1847, when ore was about the price it now sells for. Although the authentic returns do not extend beyond 1845, it is generally understood that much ore was also sold prior to that time. Coupling these facts with the estimated value of the lode in the bottom of the mine, which Mr. Bray in his recent report (published last week) says is 4 to 5 tons to the fathom, it would seem that the intended vigorous prosecution of the mine by the opening out of more ground is amply justified by present appearances and past facts.

**COLLIERY MANAGER FINED.**—At Newcastle-under-Lyme, Robert Stevenson, certificated manager for the Crewe Coal and Iron Company, was charged with infringing the Coal Mines Regulation Act by not securing sufficient ventilation in the pit. One day gas exploded at the Government Inspector's lamp, and previously there was an explosion and some men were burned.—The Magistrates imposed a penalty of 5/-.

\* \* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains:—Original Correspondence: Tin Mining in Larut—No. IV. (P. Doyle); the Great Northern Railway (W. J. Thompson); the Consumption of Fuel in Mining Engines; Patent Eclipse Rock-Drill (Mathews and Co.); the Electric Light (W. E. Teale); Cornwall Felspar; Unlimited Liability v. Mining Industries (R. Tredinnick); West Chiverton Lead Mine (H. Gould Sharp); Pant-y-Mwyn; Last Chance Silver Mining Company of Utah—Registration of New Companies—the Scotch Mining Share Market—Foreign Mining and Metallurgy—Foreign Competition in the Coal Trade—Foreign Mines—Patent Matters—Meetings of Leadhills, West Pateley Bridge, Richmond Consolidated, and West Bassett Mining Companies, &c.

## ZINC ORES.

### ARMAND AND FALLIZE.

#### INGENIEUR-CIVIL, A LIEGE (BELGIUM).

##### 1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.).

##### 2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY.

### CAPPER PASS AND SON, BRISTOL

#### PURCHASERS OF

## NOTICES TO CORRESPONDENTS.

Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

Received.—"P. C."—"N. D."—"W. H." (Wadebridge)—"Mentor"—"Nil Desperandum" (East Wheal Lovell)—"T. J. B." (Swansea)—"H. S." (Wolverhampton)—"W. W." (South Kensington)—"T. W." (Manchester)—"A. A."—"Euclid"; "We could not devote space for the article—"Shareholder" (Wheal Bassett)—"Weekly Reader" (Bath)—"Shareholder" (North London Tramway)—"J. H. N."—"T. M."—"G. S." (Wheal Jane); See last week's Journal.

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, NOVEMBER 16, 1878.

## PROPOSED MINING LEGISLATION.

The programme issued for discussion at the Special Conference of Miners to be held in Manchester next month is a most elaborate one, and evidently contemplates a complete change in the present comprehensive Act which has worked so well. In the event of some of the proposals being agreed to and brought forward in any measure introduced into the House of Commons they will no doubt be opposed on the part of colliery-owners, for were they agreed to they would not only add materially to the difficulties met with in working mines, but add considerably to the cost of raising coal. Colliery proprietors will, therefore, do well to be prepared to meet the changes that are contemplated by those who assume to be the mouth-piece of the working miners. Many of the questions to be discussed appear to us to be fully met by the Act of 1872, from which they differ but little, whilst others are either of too general or sweeping a character to be seriously entertained by Parliament. Modesty, however, is not one of the virtues that can be placed to the account of the miners' delegates, for it appears to be considered necessary that an additional number of inspectors, or assistant inspectors, should be appointed in order that mines should be periodically inspected, and that "competent working miners ought to be admissible as Inspectors of mines." Working miners of course would mean the delegates who at present represent the men, and who are always on the look-out for a position that will keep them from anything in the shape of manual labour. These constant inspections we may say would be a great source of annoyance to mining operations, for at times they would lead to stoppage of work, whilst at the same time they would take away a great deal of responsibility from the managers, and place it on the shoulders of Inspectors. Now, a divided responsibility with reference to colliery management is the one great thing to be avoided, for it could not fail to lead to a laxity in the carrying out of the necessary work for ensuring the safety of the persons employed. On the other hand, we do not see that there can be any grave objection to the clause with respect to the chief manager, which provides that he shall be held to be the person who has the responsible care or control and direction of a mine, and shall be the person in charge next to the owners. Some such provision is necessary, seeing the recent failures that took place in the prosecutions instituted by order of the Home Secretary, and we believe that Mr. Cross himself will be desirous of making such an alteration as will prevent a miscarriage of justice in the future as to those who are responsible for the ventilation and safe working of mines. The law on the subject should be clear, precise, and devoid of technicalities, so that the working men should not be able to point out that whilst the principals have been able to escape all charges brought against them, they have always found themselves within the meshes of the law, and have had to suffer accordingly. This they have certainly been in a position to do late, and there is no reason why the law should be left in a doubtful or unsatisfactory state, or that there should be anything that could even be slightly construed into a grievance on the part of working miners. At the same time, however, we do not see any ground for establishing a class of underwriters holding second class certificates with certain duties set out in the special rules.

It is, in our opinion, sufficient to have one chief responsible for everything connected with the working of mines, and amongst others of all subordinates who carry out his instructions. Of the other officials to which the attention of the Conference is to be directed are the firemen or fire triers, and it is proposed that before any person acts in such a capacity he shall undergo an examination as to his knowledge of gases, as well as to his general competency, by some person or persons appointed for that purpose by the Government. To detect gas in a mine with a safety-lamp is a very simple matter, and certainly does not require a knowledge of the law of gases; but if an expert is to be appointed to examine a certain part of a mine every morning, armed with a Government certificate, then a much higher salary would have to be paid than at present, whilst it is questionable whether there would be greater efficiency. As a rule, the oldest and most experienced miners are chosen for the position of fire triers, and from long practice would be found far better "detectives" than those who might be appointed to such a position, owing principally to their having a knowledge of the laws relating to the diffusion of gases in mines. But in relation to their duties, it is proposed for discussion that the reports of each deputy or fireman shall be entered in a book as at present, but in addition to that the book containing the report is to be kept in some convenient place, where it can be examined by the workmen before they proceed with their work. This would certainly be a powerful weapon for many purposes. As an instance, in the case of a dispute when the men did not wish to work but knew that they were legally bound to do so, they could cause a serious loss by individually stopping to examine the report. The delay may be imagined in a pit employing 500 or 600 men, and who would all be justified in stopping an uncertain time, ostensibly to look at the report, but in reality to annoy and inconvenience their employers. By such means production could be easily limited without colliery owners having any means of redress. It is also proposed that we shall have another official to preside over mining generally, and to be called a Minister of Mines, but whether to be inside or outside the Cabinet is not stated. The number of persons employed in coal and ironstone mines throughout the United Kingdom in 1877 was 494,386, and it can scarcely be said that a Minister is required to look after that number of persons engaged in a special branch of industry. If so why should not our sailors and others have a Minister as well to look after their interests? The proposal is too absurd to be entertained, although such an office, no doubt, would be thought by the Member for Stafford as one that he could most efficiently occupy.

Having noticed the officials that it is proposed to appoint—or, rather, to be discussed by the Conference—we will briefly draw attention to some of the other questions to be taken into consideration by the Conference, and several of these, we may say, are actually in force at the present time. For instance, safety-lamps before being used in mines shall be examined and tested—and this, we believe, is the rule at all collieries, for the lamp-keeper is responsible for the condition of the lamps placed under his charge. The present precautions as to blasting are not considered sufficiently stringent, but the proposal to be made is that blasting shall be prohibited in every mine or part of a mine where any large quantity of gas is given off or any accumulations of explosive gas are known to exist, and the prohibition shall continue in force until the manager declares that the mine or part of it is in a safe state. We do not see much to be gained by such a proviso, seeing that by the existing Act a shot is not allowed to be fired until the place is examined and found to be free of gas. Then we are told that workmen should not be allowed to enter a mine or any portion of one until it has been examined and reported to be free from gas, and that in case of danger

from gas during working hours all the workmen are to be immediately withdrawn from the district until an examination is made, and everything reported safe. For these special objects ample provision is made in the general rules of the Act of 1872, as included in the 51st section, whilst the men have the power of examining the workings themselves. In another instance an entirely new element is to be brought forward, and Mr. CRAWFORD evidently thinks that danger signals should be placed in all the great mining centres of the kingdom, for the purpose of making known such atmospheric changes as may affect the working of mines. What these danger signals are to be or from what cause they are to spring we are not informed. The barometer is the instrument which is supposed to portend any atmospheric changes or disturbances, and by the Act now in force it is provided that after dangerous gas has been found in any mine a barometer and thermometer shall be placed in a conspicuous place near the entrance of the mine. What more can be done we cannot conceive, but some new and startling theory on the subject may be broached at the Congress, for "in the midst of counsellors there is wisdom," so we shall have to wait patiently to be made acquainted with the most recent discovery respecting "danger signals." Then, as to fatal accidents in mines, it is proposed that when they take place no alteration shall be made where they occurred until visited by the Inspector of Mines, unless there was increased danger in so doing or the work of the mine should be impeded. What good could be obtained by adopting such a course is certainly not at all plain, even were it not impracticable. A Government Inspector, not being endowed with ubiquity, could not well be at two or three places hundred miles or more apart at the same time, or even on the same day, and examine several mines, and in all probability the men would be found opposing the adoption of such a clause as prejudicial to their own interests. It will be seen that the portions of the programme to which we have drawn attention are opposed to the interests of mineowners, and would entail upon them an increased expense in carrying on operations, without in any way benefiting the workpeople or giving them greater safety than they now enjoy. But as a sort of set-off, we suppose, it is proposed that power shall be given to examine the clothes of workmen who may be suspected of being in possession of anything likely to increase the danger in a mine, such as a tobacco pipe or matches, but the power, we may say, is already in force, and has resulted in many convictions. Altogether we think the questions which are to be brought under the notice of the Congress, and the efforts that will be made in the ensuing session of Parliament to ensure legislation in connection with our mines, will only require combined action on the part of colliery owners to render them harmless. The members of the Congress will have a week's holiday at the expense of the working miners, and that, we suppose, is something to be thankful for by the "miners' friends."

## OUR EXPORTS.

The returns just issued by the Board of Trade for the month of October and for the first ten months of the year are by no means healthy or satisfactory so far as they relate to our exports of British produce. The value of the products and manufactures exported during the month amounted to 17,255,450/-, against 18,372,693/- in 1877, and 17,779,274/- in 1876, being a decrease of 6.1 per cent. as compared with 1877, and of 2.9 per cent. with 1876. Taking the ten months the total is 162,181,636/-, against 166,058,212/- in 1877, and 20,857,517/- in 1876, being a decrease of 19 per cent. as compared with 1877, and of 0.3 as compared with 1876. In monetary value the greatest decline has been in cotton piece goods, which form about one-fourth of all our exports. Wrought and unwrought iron comes next, and the decline in the value during the last ten months as compared with 1877 was 1,287,834/-, or equal to 7.7 per cent. On the other hand, machinery and mill material show to marked advantage during the present year—the increase being equal to no less than 14.2 per cent., which speaks well for this important branch of industry, in which iron and steel plays such an important part. Hardware and cutlery, too, despite the complaints that have prevailed also look well, whilst coal and coke show to advantage so far as quantity is concerned, the decline in value being the result of a reduction in the price per ton.

As we have before stated, although there is a falling off in the total values of several products, yet this is caused by the lower prices which prevailed during the present than in the previous years. This has been the case with respect to pig-iron, for whilst the average price for the ten months of 1878 was about 53/- per ton, for the same period of 1877 it was about 58/-—so that the difference between the two sums will more than account for the falling off in the aggregate value of the exports for the present year. Holland and Germany have been our best customers, taking between them nearly one-half of all the pig sent out of the country, France and Belgium coming next, whilst of late rather more has been done with British North America. Bar, angle, and bolt iron has not been in such good request during the present year, and our heaviest exports have been to our own possessions—British North America, India, and Australia.

During last month the value of hardware and cutlery sent to foreign countries was 313,949/-, against 314,846/- for the corresponding month of 1877—a decrease of only 0.3 per cent.; but taking the ten months of the present year, the value was 2,728,793/-, and for 1877 2,759,997/-, or a decrease between the two periods of 1.1 per cent., which, all things considered, is more satisfactory than might have been expected. And here again we find Australia in the first place as a consumer of British cutlery and hardware, as she is also for other descriptions of iron and steel goods, and when taken in conjunction with British North America and India, shows how valuable our colonies and dependencies are becoming to us as consumers of products for which we have long been noted, but in which there is a good deal of competition on the part of continental manufacturers.

During the present year we have also done a very fair business with the United States in cutlery and hardware, that country standing next to Australia. Tin-plates are principally exported to the United States, the average price being close upon 18/- per ton. Machinery and millwork, more than anything else, show to advantage, and in those branches makers have certainly had nothing to complain of. During October last the value of the exports was 685,351/-, against 633,323/- for the same month of last year, being an increase of 8.2 per cent. But if we take the ten months of 1878 the returns are still more favourable, showing the value at 6,340,928/-, against 5,554,241/-, equal to 14.2 per cent. increase for the present year. In steam-engines British India has been the largest consumer, Australia being next, and then Germany and Russia. In other descriptions of machinery Russia has taken the lead, followed by Germany, France, British India, and Australia. So far Bessemer rail-makers have had nothing to complain of with respect to orders from abroad during the present year, so far as it has gone, but during the last month or two prices have been falling off. Still we are able to hold our own on the Continent, as well as in more distant countries. Russia has been our best customer, and it is worth noticing that our exports of steel rails are now about double those of iron. In hoops, sheets, boiler, and armour plates the exports have been kept up very well, there being very little difference in those of the present year, as far as it has gone, and for the corresponding period of last year, but prices are lower, of course, than they were in 1877.

Our exports of coal for the last month, as well as during the year, contrast favourably, so far as weight is concerned, with those of the previous year. Taking the 10 months of the three years, including the present one, the quantities were respectively 13,829,702 tons, 13,181,103 tons, and 13,258,519 tons, showing, however, a considerable increase in favour of 1878. During the present year France took 2,544,422 tons, against 2,493,315 tons in 1877. Taking the ten months of 1877 there were sent to the following countries—Russia, 1,019,591 and 1,195,355 tons; Germany, 1,737,063 and 1,630,598 tons; Sweden and Norway, 1,043,841 and 946,147 tons; and Italy, 942,990 and 953,155 tons. The falling off with respect to Germany, as we have on former occasions pointed out, is due to the activity of the German colliery owners, and the encouragement given them by the

state. It will be seen that the increase in the exports of coal during the present year has been 77,416 tons, as compared with last year, yet whilst in 1877 the value was 6,738,295/-, whilst with the increased tonnage this year the value was only 6,302,164/-, a decrease of 6.5 per cent. Still when we look at the marked decline which has taken place in the export of textile fabrics, as well as other goods, during the present year, we think it will be admitted that iron, steel, engines, machinery, and coal, industries of the greatest importance to the country, on the whole, have gone off well, and far better than might have been expected when we consider the state of trade at home.

## NANT-Y-GLO AND BLAINA IRONWORKS COMPANY.

Another twelve months have brought in their train another report from the directors of that most unfortunate concern—the Nant-y-Glo and Blaina Ironworks Company (Limited). It is rather difficult to see why the undertaking should still be called an ironworks company, as it has discontinued the production of iron for a considerable period, and does not exhibit any disposition to resume it. However, this by the way. The great fact which stands out in prominent relief in connection with the Nant-y-Glo and Blaina Ironworks Company for the twelve months ending Aug. 31, 1878, is a loss of 26,827. The previous losses sustained by the company to Aug. 31, 1877, amounted to 121,785/-, so that altogether 148,612/- of the company's share capital has now vanished. Of course, it may be gradually recovered again, but such a process would necessarily be a slow and tedious one; and although the directors "hope that the time is not far distant when a dividend will be earned for the shareholders," they are considering the question of reducing the capital, and wiping out of the balance-sheet the accumulated losses of past years. This appears to us to be a doubtful policy, and it certainly is an un-English one, as it savours of want of perseverance. Two other courses are clearly open for adoption. The first of these is the carrying of the accumulated losses of past years to a suspense account to be gradually extinguished out of half the net profits, the remaining half to be applied to the payment of dividends on the shares. The second course which might be adopted is the financial reorganisation of the company. At present the share capital of the company is made up of 500,000/- of 8 per cent. preference shares and 250,000/- of ordinary shares. The 8 per cent. preference shares are distributed pretty well among the public, but the ordinary shares have, we fancy, little more than a paper existence. Why not, in consideration of a reduction in the rate of the interest attached to the preference shares from 8 per cent. per annum to 6 per cent. per annum—a proceeding which would, of course, materially increase the chances of a dividend upon the ordinary shares—bring down the amount of the ordinary share capital from 250,000/- to 150,000/-? We have explained our two courses in detail; but we prefer, upon the whole, a gradual extinction of the losses of past years by means of a suspense account. The directors seem to have arrived at the conclusion that the season of loss is drawing to a close, and that the period of profit has set in. We hope that this may really prove to be the case, and that a trifle of dividend may be in store for the hitherto most unfortunate shareholders. But it must be remembered that the suggestion of a reduction of capital really means nothing more or less than an abandonment of capital, as so much money for ever sacrificed and lost.

The directors appear to be doing what they can to retrieve the disasters of the last few years. They seem still to find it discouraging for the company to attempt to raise coal from the property itself, the cost to the company of the coal sold by it in 1877 was 34,218/-, having been 40,636/-, but the sub-letting of the opened collieries has now been completed, with the exception of some small openings at Nant-y-Glo, which could be usefully let with the Nant-y-Glo blast-furnaces. The present output of coal from the sub-letting is quite equal to the expectations of the directors, considering the depressed state of trade. The lessees are making various improvements with the view of increasing the output when trade revives. The Blaina collieries and the Griffin pit were taken over by Messrs. J. LANCASTER and Co. in March, 1878. Messrs. LANCASTER are expending a large sum in re-modelling the Griffin pit, in putting up new machinery at the Lower Deep pit, and in constructing a new railway. Altogether, the firm are preparing for an extensive trade, which will bring in a considerable royalty to the Nant-y-Glo and Blaina Company. We can only repeat our hope that better times are at length dawning upon this once prosperous property.

## CORNWALL MINING INSTITUTE.

The trials of boring machines at Dolcoath in connection with the annual exhibition of the Mining Institute proved exceedingly attractive and successful, though it cannot be said that they added anything to what was previously known concerning the practical working of the various forms of apparatus. Four machines were tried, as stated last week—the Barrow, McKean, Eclipse, and Brydon and Davidson. Of these two are at work in the county—the Barrow and McKean, and the Eclipse had a very successful trial at the exhibition of the Polytechnic Society, where it had a first silver medal, and has made a capital start at West Basset. It was anticipated that Brydon and Davidson would have sent a new machine, but the one tried was that which was sent to the exhibition of the Institute last year, and which had remained there ever since. Moreover it was stated that it had not been properly cleaned and prepared; this caused a leakage of air, and, therefore, practically the trials were confined to the three machines first named. The Diamond Rock-Boring Company did not enter for trial, thinking that the work done at Carn Brea was the best possible proof of the capabilities of their machine, but they sent a bore which had been some years in work to show how well it had stood the wear and tear. As an illustration of the mode of action and general efficiency of the Barrow, McKean, and Eclipse drills, the trials were not only interesting but valuable, but of course for real competition something more is required.

The Eclipse was the first machine worked. It had a 2½ in. cylinder, and was set to work at 50 lbs. pressure, with 1½ in. bit. The rock was very hard. In 4½ minutes it bored 5½ in., and then with a change of bit it drove through the stone in 2 min. 40 sec. more, a total drivage of 13½ in. in 7 min. 10 sec. Subsequently it was tried on another piece of rock, the same as that on which the Barrow and McKean drills were tried, and which had been considered of softer character. Here with a 1½ in. bit it bored 13½ in. in 3½ min., including a little delay in starting in consequence of lack of adequate pressure. There was no question that the Eclipse well deserved its honours won not only at Falmouth but at Paris. It certainly ought to have good opportunity of showing what it can do in actual mining operations under the conditions which rule at Cornwall, elsewhere than at West Basset.

The Barrow machine has a 4-in. cylinder, and is, therefore, much bulkier than the Eclipse. It was started with a 1½ in. bit, and drove 4½ in. in 1½ min., and in 2½ min. more, 9½ in.—making a total in 3½ min. of 14½ in.

The McKean drill has a 3-in. cylinder. It started with 60 lbs. pressure and a 1½ in. bit. With this it bored 7 in. in 3 min. A 1½ in. bit was then put in, and in another 2½ min. bored 5½ in. in 50 sec. more carried the bit through the stone: total, 13½ in. in 6½ minutes.

There is no need to comment on the work of the Brydon and Davidson borer for the reasons already given. Beyond this, it was neither fixed nor weighted properly, and the bits were not at all up to the work required of them—not hard enough for anything beyond sandstone. Taking the three trials made under similar conditions—that is upon the same kind of stone—it will be seen that the Barrow and the Eclipse bored at nearly the same rate, the former 14½ in. in 3½ minutes, and the latter 13½ in. in the same time, whilst the McKean took 6 minutes to do the work. All, however, did their work well, as far as its character was concerned. The Eclipse differs from the other two in having an automatic action. Certificates of merit were awarded to the Eclipse, Barrow, and McKean machines, the latter being a confirmation of the award.

made to the McLean borer last year. When the Barrow was tried last year the arrangements were imperfect, and the merits of the drill could not be shown. This year it has fully proved its capabilities.

#### BORING MACHINERY AT WEST WHEAL TOLGUS.

The following is an extract from the West Tolgus Mine report, dated Oct. 29, and addressed to Messrs. John Taylor and Sons:

The boring machine is of great advantage to us, as by it we can sink fully one-half more ground at a much less cost per fathom. While sinking by hand labour we employed 20 men, of whom 12 were the regular shaftmen and 8 labourers.

The monthly wages paid were—

12 shaftmen at 3d. 15s. per month	£45
8 labourers at 3d. 5s. per month	26
The cost of explosives, candles, smith's cost, &c.	15

Total	£86
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The average rate of sinking was 5 ft. per month, so that the cost per fathom was 103s.

We have now had three months experience of the use of the boring machine, during which we have sunk 4 fms., or an average of 8 ft. per month.

The monthly cost has been—12 men at 4d. per month... £48

Explosives, candles, smith's cost, &c. .... 20

Engine cost ..... 22

Total ..... £90

An average cost of 67d. 10s. per fathom. The machines we are using are the Barrow rock drills, Loam and Sons' air compressor, and a small pneumatic engine for hauling from the bottom of the shaft to the 145 fm. level.

#### REPORT FROM CORNWALL.

Nov. 14.—It really seems almost too good to believe, long and steadfastly as we have been expecting it. As a rule, lately, about this time we have been looking to the new year with some little hope, but with a good deal more anxiety. But now prosperity seems to have dawned just when we were least anticipating it, and when the pessimists, who have done so much injury to mining, as to everything else, were inclined to croak their loudest. Another rise in the standards last Saturday was the Cornish equivalent of the advance of 10% in the open market which the last three weeks has brought us. We say the Cornish equivalent because the tardy action of the smelters seems very curiously to illustrate the point in controversy at the Mining Institute last week between Capt. Teague and Mr. Pendarves Vivian, and the contention of the former that there is no very absolute identity between the smelter and the miner so far as their respective interests are concerned.

It seems only possible to interpret this turn in the tide in the direction for which we have always contended. In spite of the "mountains of tin" of which we have heard so much—on paper—Australia and Tasmania are being beaten. The old country has won the race, purely in right of that superior "staying power" to which we have so often directed attention. Nor is it possible fairly to resist the conclusion that very bright times are again ahead, and that luck is once more to be rewarded. If with stagnation of trade at home, and foreign competition abroad—if with a high Bank rate to check the faintest vestige of a speculative tendency, and in spite of the efforts of our mines to keep their heads fairly above water by returning more tin by hundreds of tons than ever before—if in the face of adverse influences such as these we have a rising demand, what may we not expect when that general revival of trade sets in for which we have been so anxiously looking, and when the influence of such untoward events as the failure of the Glasgow Bank shall have ceased to be felt?

The one thing needed now is caution, lest this rising tide of prosperity should be discounted. We must be content to go on for a while quietly until the new state of things has had time to consolidate itself, and especially will it be needful for the holders of stocks to be careful how they put their stores on the market, and thus to check what should be a course of steady progress, even if only for a time. A further rise in the standards cannot be far off, for while the general tendency of the market is still upwards, already prices

in advance of the official figures have been given.

There is no apparent prospect of a similar improvement in the china-clay trade. There the supply has been largely in excess of the demand, and will continue so apparently until reviving business shall have absorbed the large stocks on hand. Thirteen clay-works have ceased to work this year around Bugle and Roche alone, and in other parts of the county where the industry was being introduced into new districts matters are quite at the standstill. Of the thirteen several, indeed the bulk, were merely speculative in their character, and their collapse has merely fulfilled expectations. Others will start again when the trade improves. Freights from the clay ports are now but little above summer rates, little real business doing, and too many to do it. There has been a considerable exodus of the younger hands, great numbers of whom have gone abroad. Clay working is so little of a skilled occupation, however, that if there was a demand for hands there would be very little difficulty in obtaining a supply. As time goes on indeed clay working must assume a more and more mechanical character.

There is evidently in West Cornwall a good deal of depression, and the recent restriction of operations at South Crofty threw many men out who have really known where to turn.

An influential meeting of mineral owners and others was held at Lanner, on Friday, to consider what steps should be taken to relieve the wants of those who are suffering from the depression. Mr. S. Bolitho presided, and amongst those present were—Mr. A. P. Vivian, M.P., Mr. W. C. Pendarves (high sheriff), Mr. G. L. Bassett, Mr. Davies Gilbert, Mr. J. C. Daubuz, Mr. W. Bolitho, Major Haye, Mr. Glanville, Mr. D. W. Bain, Mr. Bolden, and the Revs. Canon Rogers, W. Chappell, E. M. Pridmore, and J. W. Johns. A considerable amount of privation in the mining districts was reported, and resolutions were passed with a view to relieving it to some extent. In the first place it was decided to form a committee in each poor-law district to consider the state of the distress in their districts, and report to the central committee; further, it was resolved that the guardians of each district should be requested to elect one of their members as a representative on the central committee. Mr. S. Bolitho resigned the chairmanship of the central committee, and Mr. Pendarves was elected in his place. Mr. Cornish, of Penzance, was asked to continue to act as secretary to the committee, which he consented to do. The Duke of Leeds, Mr. Bickford-Smith, Mr. Bassett, and Mr. Bolitho are at present employing a number of men in reclaiming lands in West Cornwall, and there can be no question that in this way profitable employment might be found for hundreds of men.

Dr. Foster has made a discovery in St. Just. No fewer than 64 unfenced shafts, all on Wheal Hermon Mine, a bar of which very few have ever heard out of the district, probably, and which is not now in operation, but which ought to have been a big concern with many shafts about it. At the West Penwith Sessions Mr. Douglas Round, of London, and the Rev. Baron Hitchens, of Chester, the lessees of Wheal Hermon Mine, were summoned at the instance of Dr. Foster for allowing ten shafts to remain unfenced on Aug. 9. Mr. Paul appeared for the prosecution, and Mr. J. P. Milton for the defence. Dr. Foster said his attention having been called to the state of the shafts, several letters had been written to Mr. Alfred Chenhalls, the local agent of Messrs. Round and Hitchens, calling attention to the shafts being unfenced. They were all in unenclosed land, some of them being within 20 yards of the path the coastguard have use at night.—Mr. Alfred Chenhalls stated that he was the local agent for Messrs. Round and Hitchens, and had been in the habit of remitting all dues to Mr. Round, and had frequently negotiated with the latter. He did not remember having received a letter from Dr. Foster in November, 1877, but recollects having a personal conversation with him on the subject of the unfenced shafts. In 1875 he had had five shafts fenced.—The Bench were of opinion that the lessors were not liable, as the lease is still in existence; and,

therefore, the case would be dismissed.—Mr. Milton applied for costs, which, however, were refused.—Mr. Paul gave notice of appeal.—Messrs. J. Bennetts and R. Boyns, banker, of St. Just, as lessees of Wheal Hermon Mine, were then summoned for having, on Aug. 9, 53 unfenced shafts about the mine within 50 yards of the highway.—Dr. Foster stated that on Aug. 10 he wrote Mr. Boyns stating the exact position of 52 of the shafts, and requested him to get them fenced. He had selected 10 out of these for the summons. In reply to his letter of Aug. 10 he received a letter from Mr. Boyns, stating that the mine had been closed from November, 1876, to February, 1878, but that notices had been posted that tenders would be received for fencing the shafts.—Mr. R. Boyns stated that 12 of the shafts had been already fenced, and the work of fencing the others was then going on.—The case was adjourned for a month.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Nov. 14.—The Coal Trade is less active in the furnace department than for very many months past, and the depression is increasing week by week. The forge coal department remains quiet. House coal is selling more freely than of late. In the Cannock Chase district, however, less fuel is being brought to bank this week than is usual, as a large portion of the colliers have come out on strike. This is so because certain of the masters decline to let the men continue at work upon the old terms, pending a settlement of the existing wages and hours difficulty, but require them to at once accept a drop of 3d. per day. The Charnock Chase colliers, even as it was expected they would, express themselves as determined to resist that part of the employers' offer which relates to longer hours, and they are also indisposed to consent to the continuance of the Birmingham agreement with the clause as to a minimum rate of wages expunged. Consumers of Cannock Chase coal express much dissatisfaction at the statement of agents that even if wages should be reduced the price of coal will remain unaltered. Fewer blast-furnaces by three are blowing this week than last in the South Staffordshire and East Worcestershire district, and this is eloquent as to the state of the trade. Pig makers are hoping for some relief in the matter of raw materials, by reason of the notice which the proprietors of the limestone pits in the Sedgley district have given to their workpeople for a drop in wages of 6d. per day. Hitherto the men, who have only been working about half-time, have been paid at the rate of 3s. 8d. per day; it is taken for granted that the notices will be accepted. The Round Oak Ironworks of the Earl of Dudley have received some fresh contracts from the Government dockyards, and this is helping to make them busier. It is believed that the commencement of work there on Monday mornings, mentioned in my last, will continue for a month or six weeks. The Patent Shaft and Axletree Company at Wednesbury are understood to have more orders on the books than for 18 months past; these cases of activity are conspicuous exceptions to the rule just now as touching the demand for finished iron. The sheet-makers, who up to a little while ago were well off for orders, are becoming perceptibly quiet. The slackness is chiefly on export account. Prices were never lower.

At an adjourned general meeting of the Darlaston Coal and Iron Company (Limited), held at Birmingham on Tuesday, the directors' scheme for raising 65,000/- additional capital upon new debentures was passed after it had undergone some modification, which made it more favourable to the present debenture-holders. The directors pledged themselves not to spend any of the money in laying down a steel plant for at least a year, and not even then until the permission had been received of a general meeting.

As the result of the last half-year's working of the Pelsall Coal and Iron Company (Limited) there remains, after writing off due allowance for depreciation and bad debts, a credit balance of 378s. The debit balance of 8543/- shown in the last annual balance sheet is now, therefore, reduced to 4755/- This statement is eminently gratifying.

A conference of miners representing South Staffordshire, Cannock Chase, North Staffordshire, and other surrounding districts was held in Wolverhampton on Thursday. The proceedings were, however, conducted in private, and the meeting at starting determined that no communication should be vouchsafed to the Press.

The North Staffordshire iron business is still a hand-to-mouth one; few proprietors can see far ahead. The demand experienced is mostly for the satisfying of local requirements. About six turns a week is the average of the bar mills. Prices of bars are ruled by the 6d. 10s. average for "Crown" bars. Hoops are in fair sale. Messrs. Robert Heath and Son are, perhaps, better off for work than any other firm, the reputation which their iron has with the Admiralty being of much service to them. The coal trade is not marked by improvement. The Chatterley Iron Company have given their miners notice for a drop of about from 5 to 10 per cent.

#### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Nov. 14.—Mr. Absalom Francis is labouring under a mistake. I have not in any of my reports made the statement which he says requires contradiction, nor alluded to the subject he refers to. Although not directly concerning my district, I may be allowed to express my satisfaction that Mr. J. H. Collins, F.G.S., has had the courage to dispute the correctness of the notions which hitherto have led to the "lumping" of all the Cornish strata as Devonian. The truth of Mr. Collins's classification can, I think, be proved both lithologically and mineralogically. I have also permission from Mr. D. C. Davies, F.G.S., of Oswestry, to state that in his forthcoming work on "Metalliferous Minerals, Mines, and Mining," he shows that at least the tin and copper-bearing rocks of Cornwall are, as Mr. Collins states, of pre-Silurian age. It is a "far cry" from the City of Glasgow to Flintshire, but I am amused in observing that whether there or anywhere else Mr. R. Tredinnick begins his gyratory flight, he invariably gets lost in West Cornwall a good deal of depression, and the recent restriction of operations at South Crofty threw many men out who have really known where to turn.

Another member I see is added to the rapidly-increasing family of the D'Eresby's in the North D'Eresby Mountain Lead Company (Limited). As in many other families, the new babies arrive before the last can walk, but we will hope that, unlike Scotch persons who are said to be rich in the nursery and poor in the pocket, this D'Eresby mining family will be rich in the pocket also. We are expecting, however, the oldest child, the D'Eresby Mountain, to toddle bit for himself.

I often wish that we could establish some simple rule or line in mining like that of poor Micawber's in family finance, indicating ruin on the one side and surplus on the other. Is there any such rule applicable to lead mining? Talking to a mining friend the other day, he suggested one. "Ordinarily," he said, "after a mine is opened the entire costs may be taken at three times that of the average cost of stoning. Thus, if a fathom of productive ground costs 60s. for stoning, the additional costs of development, roads, management, unprofitable ground, rents, taxes, and royalty may be set down at double the amount, or 120s., so that the total cost would be 90s. If, therefore, the average quantity of lead obtained is below this amount in value, the result is failure if above success." I give my friend's remarks as he gave them me, and I should much like the opinion of mining captains on the question. Is the proportion of three to one as the proportion of the total costs of the mine to that of stoning a fair one or not?

A meeting in support of the proposed narrow-gauge railway from Llangynog to Oswestry was held at Llangedwyn last week, Sir W. W. Wynn, Bart., M.P., in the chair. The line is to be of a 2 ft. gauge, similar to the Festiniog and Abergynolwyn lines; its cost is estimated at 50,000/-; its length is 21 miles, so that the cost will be under 2500/- per mile. Sir Watkin promises to sell his land at its agricultural value. The other great landowners also promise to render every facility possible. The movement has evidently been accelerated by the use of traction engines along the principal road of the district traversed, and to which I have alluded in former reports. Meetings are intended to be held in support of the scheme at Llangynog, Llanrhaidr, and Oswestry. A large and influential committee has been formed, and with adequate local support the thing looks like success.

The Caerphilly Canal, near Wrexham, has passed from the form

of a limited to that of a private and unlimited company; it is now owned by three or four of the former directors. John Jones, a young collier, was killed last week at the Bettisfield Colliery through going into a working which was marked "strongly impregnated with gas." He was suffocated. Would a Welshman or many English workmen understand the clumsy word impregnated? The simplest and strongest language ought to be used at collieries and mines. Mr. Gladstone gave some good advice to his neighbours the colliers and brickmakers of Buckley Mountain on Monday night last at the opening of a literary institute on the Mountain. He urged the cultivation of the mind, and the necessity and advantage to this especially to the working man. Buckley Mountain has advanced in intelligence since the year 1854. In the autumn of that year I was present at a lecture on "The Formation of Coal," given by a friend, a well-known geologist. As the lecturer proceeded, one by one the men, colliers chiefly, got up and walked out of the room, leaving the speaker talking at last to an audience of women and children. "It was not likely," said some of the men afterwards, "that we are going to sit and listen to stuff like that!" Mr. Gladstone fared better on Monday night.

#### TRADE OF THE TYNE AND WEAR.

Nov. 13.—The recent demand of the Northumberland steam coal-owners for a reduction of 12½ per cent., and an increase of an hour per day in the working hours, still attracts much attention, and after some discussion between the parties most concerned the masters have decided not to insist on any increase in the working hours of the boys at present, but the men will be asked to work an hour more per day, and also submit to a considerable reduction in the rate per ton. There is no change in the state of the steam coal trade, and short time is still the rule at the great majority of the collieries in Northumberland. At Babside, which has been a very successful work, there has been little doing lately, and the masters have determined to stop one of the seams, which will throw 200 men out. The Cambus and Cowpen Collieries as usual work regularly, but the work is very irregular at most other works. In Durham there is little change, but, on the whole, the men are fairly employed; those works who have contracts for supplying gas and other coals are worked regularly. The West Thorne Colliery has been stopped; the men offered to accept some reductions, but this has not induced the masters to go on as yet. One of the seams at the Houghton Colliery has been stopped where 200 men were employed. At Hebburn, as we noticed last week, the men had given notice for an advance—a rather foolish proceeding at this time—and the masters have replied to this by giving all the hands notice to terminate their engagements in a fortnight. At present there are a great many miners and non-workers out of employment, to say nothing of workmen in other branches of labour, and numbers are anxious to emigrate to other countries if it were possible to do so.

A more active trade is springing up from the Tyne to New York, several steamers having been loaded with general cargoes for that port, and this movement is looked upon with some satisfaction by mercantile men. In the chemical trade the men have shown some alacrity in accepting reduced wages to a very considerable extent, and this may lead to more work being secured for the ensuing winter; in some cases contracts have been made for the delivery of goods for the ensuing year at lower rates. This trade continues on the whole, in a very unsatisfactory state, and several small works have been stopped on the Tyne.

A memorial is being organised by the manufacturers of firebricks and firebrick goods in the Durham colliery districts to apply to the North-Eastern Railway Company for a reduction of rates on this class of traffic. A meeting is to be held shortly to make arrangements for laying the matter before the railway company. The reasons alleged for the application are that by the present charges on firebrick material which are levied by the North-Eastern Railway Company the Durham manufacturers are placed at a disadvantage of 8d. or 10d. per ton in delivery at Middlesborough, Stockton, &c., as compared with the firebrick goods of the Tyne district, which are sent round by the sea. They, therefore, ask for the concession in order to compete with their Tyne rivals. A large quantity of firebrick goods is consumed at the blast-furnaces and ironworks of Cleveland, and the trade is one, therefore, which is of some importance.

In consequence of the extreme depression in the lead markets the representatives of the Governor and Company in Upper Teesdale have just given notice of a further reduction in the workmen's wages of 10 per cent. Already a large number have been discharged from the mine, and quite a gloom has been cast over the higher part of Teesdale. For a long series of years the operations of the London Lead Company were practically unaffected by the fluctuations in trade, and the reverse now experienced is keenly felt by the great bulk of the inhabitants. Added to general commercial depression a large amount of sickness prevails in Middleton-in-Teesdale and neighbourhood, the mortality being high. No fewer than 17 fresh cases of scarlet fever have broken out during the past week. Much distress in consequence exists.

The North of England Institution of Colliery Engineers monthly meeting was held, on Saturday, Mr. Hair presiding. Additional information was given by Mr. J. T. Dawson respecting a revolving screen, which has been patented by a German, and which was explained at the last meeting of the institution. Mr. Dawson stated that a revolving screen to turn out 500 tons of coal in 10 hours required a driving power of 14 to 12-horse power, and it was used in Germany to screen both hard and soft coal, and screened both successfully. As compared with the long drum screen used in Westphalia, the revolving screen showed a gain to the extent of 25 per cent. in the coal unbroken. According to information Mr. Dawson received from Germany a pair of drum screens with a surface of 2520 square feet delivered 2746 lbs. of coal per minute, whilst two spiral or revolving screens with a surface of only 2770 ft. delivered 4680 lbs. per minute, which would amount to about 600 tons in 10 hours. The discussion on the subject was postponed until next month.

The market is largely in a disorganised condition. The attendance at Middlesborough on Tuesday was poor, and the transactions which take place are almost entirely for cash. Cash buyers can get iron nearly at their own figure, and makers' prices cannot now be really placed at above 37s. 3d., No. 3, less 1 per cent., though some are quoting 38s. It is confidently stated that needy makers have sold iron at 36s. 6d., No. 3, and merchants give out that they can do business for even less. The Cleveland mineowners are about to ask a reduction in the wages of the ironstone miners. The shipments of pig-iron, which showed a great reduction last month, do not promise at all favourably for the present month. Last week the deliveries for Scotland were again less than half what they were in the corresponding week of 1877, the total deliveries from Middlesborough being only 3875 tons. This reduction in the Scotch trade is regarded as most unfavourable feature, especially as the shipments of Scotch iron outwards show no diminution. The finished iron branches are getting worse as the season goes on. Prices are very low, and altogether there is a much less favourable feeling in the trade. Bars and angle iron are much less in demand than they were some time back, and work threatens to be scarce. A large order has been received by Hopkins, Gilkes, and Co. on account of South Africa for pipes, which it is stated will take some months to execute; but in other respects the foundries of the district are not very promising. Leaving out the railway work, the engineering department are not so well spoken of; there is very little enquiry for fresh work. Ship-plates do not usually command more than 6d.; common bars, 5d. 7s. 6d.; angles, 5d. 10s. less 2½ per cent. The Eston Steelworks are busy, and the electric light is, it is stated, about to be employed there. The wages questions are agitating the district to some extent; 5 per cent. is claimed as a reduction in the case of blast-furnace men and ironworkers. The coal and coke trades are quiet, and there is no alteration in price.

At the North of England Institute of Mining and Mechanical Engineers' meeting, on Saturday, Mr. G. C. Greenwell (the president) in the chair, Mr. Friere Marricco gave an account of some experiments recently conducted by various members of the Institute,

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including Mr. Wm. Cochrane, Mr. D. P. Morison, Mr. George May, and others, on coal dust in relation to colliery explosions. These experiments have been carried out in the laboratories of the college, and at Elswick, Harton, and other collieries, in order to determine how far a mixture of coal dust and air, in the absence of fire-damp, is capable of producing an explosive action. The lecture does not admit of abridgment, but the main conclusions to be deduced from the experiments, so far as they have gone, are that the gases from a blown out shot are capable both of raising and of firing a cloud of such a mixture, in which the flame produced by them may be prolonged to a considerable distance, and that when produced under other conditions described, such a mixture might fire at a flame. In either case there is produced a violent action, which, even if it be not strictly what can be called an explosion, when carried out on a small experimental scale, may easily become such when considerably magnified in practice. On the motion of Mr. A. S. Stevenson, a vote of thanks to Professor Maricco for his lecture, which frequently elicited applause, was carried by acclamation. The members of the Institute intend to visit the Browney Colliery, near Durham, on Nov. 21, to inspect the apparatus at work there for saving labour and expense in the manufacture of coke (as described in Mr. W. Harle's paper, read at the March meeting). A large number of the members are expected to attend the meeting.

## REPORT FROM THE FOREST OF DEAN.

*Nov. 14.*—Things remain much as they were, generally speaking, at the time of the writing of our last report. Some few modifications of circumstances have taken place—in one case for the better, and in another for the worse. The coal trade, we rejoice to report, has further improved, so that at most of the pits there is a good run of trade, and men are now, on the eastern at all events, very generally employed. This is so far satisfactory, although the colliers still complain that they cannot in many instances secure good wages. The attempt to reorganise a Union has so far succeeded that over 100 have given their names as members; but we learn that some of the more active promoters have other ends in view than a Miners' Union—they think that by discussing unionism at public meetings to secure opportunities for propagating co-operative principles—some of the speakers being already leading spirits at co-operative stores in the district, which do not, however, very rapidly advance. We cannot think that, after so much evil (as well as some little to come, no doubt) manifestly sprung from the former Union, a large number will give their adhesion to Unionism again, unless conducted upon more righteous principles than the former one was. Some men, however, prefer being gulled by swagger and self-assertion to listening to sober reasoning and just principles. Time will prove ere long how far the colliers have benefited by past experience.

We regret to have to report that the iron and tin-plate industries are still in a sluggish state. The Forest Vale Ironworks are especially slack just now. At the time we write no notices, as far as we are aware, have been issued by Government respecting the introduction of a Bill into Parliament next session with the intention of partially enclosing the Forest, and of capitalising the rights of free miners, but we do not by any means think that such intention is finally abandoned. We rather incline to think that as soon as a new map of the Forest from the last Ordnance Survey is constructed, a fresh attempt will be made to deal with the subject just specified. And we freely admit that there are considerable areas in various parts of the Forest that might be enclosed for small farms, with suitable homesteads to be built, leaving open spaces for intercommunication of the general inhabitants of the district. Many, however, are strongly opposed to anything of the kind, fearing that enclosure would be carried to the extent of all but completely shutting up the Forest. If it were clear that only patches, or limited areas, would be enclosed for the purposes already mentioned, many would welcome such changes as desirable improvements, who would strenuously oppose a general system of enclosure. Although the Great Western Railway Company some time since staked out certain short connecting lines below Cinderford, and in the vicinity of Blakeney, to connect their system with the Severn Bridge, we have received no intimation of any actual operations being commenced, but if the company intends being ready for the opening of the said bridge it is surely time to be in action. Quotations, we believe, as affecting our staple trades remain in statu quo.

## REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

*Nov. 14.*—The latest event in connection with the Abercarn catastrophe is a strike among the men who form the exploring party, who demand higher wages. Four bodies have already been got up out of the pit, but it may be some weeks before this number can be much augmented. The enquiry will be re-opened on Monday next. The electric light is to be introduced shortly by the Alexandra Dock Company at their dock property. The result will be to enable night operations to be carried on, and thus increase the quantity of shipments of coals principally. The Nanty-Glo and Blaina Ironworks Company's accounts for the 12 months ending Aug. 31 show a loss of no less than £26,827. This company was launched at a time when the staple trades were at the height of their prosperity, but it will probably be many years before the shareholders receive anything like a fair return for their money. The company has now, however, ceased trading, and it is believed that no further loss will be incurred under the head of profit and loss account. There has been a rumour prevalent in Newport that the Dos Works—an extensive nail factory—would probably be closed for three months at the end of the year, but a contradiction has since been given to this. A shocking accident has occurred at the Bwlch Colliery, Cwmduar, belonging to Messrs. J. Brogden and Sons. It appears that three colliers were descending for the night shift, when the carriage caught the side of the shaft, overturned, and precipitated the men to the bottom, dashing them almost to pieces. The inquest has been opened and adjourned. Yet another colliery company has been wound up. On Saturday the Master of the Rolls granted a petition for the winding up of the Saundersfoot and Tenby Collieries Company (Limited).

Orders for iron have now to be executed at such low prices that every effort is being made to lessen the cost of production, for in many cases masters have to refuse orders on account of the low quotations offered. At the Llynny, Tondu, and Ogmore Works the men have just consented to a reduction varying from 5 to 7½ per cent. This was the only alternative they had to being thrown out of work altogether. If the men had acted through in the past probably better prospects would appear for this branch of trade, and we should not experience to such an extent the evil effects of competition that we do now. There is little or nothing doing in rails; bars are quiet, but in slightly better request. Pig-iron is materially unaltered. Steel rails are in not quite such good request. The Tin-plate Trade is a trifle more active. The restriction of make is being carried out by a large majority of the makers, and as a consequence there is already rather a better enquiry, although prices are as yet unaltered.

The foreign demand for coal continues about up to the average, and it appears probable that shipments from Cardiff for the present year on foreign account will again be above those of the port of Newcastle. This speaks volumes for the favour in which Welsh coal is held, and is also probably due to the lowness of prices which obtain here. These have not in the slightest degree increased. As a rule not quite so much work is doing at some of the collieries. It is stated that the Penybont pit, Abertillery, belonging to the Brynmawr Coal and Iron Company, will be stopped at the end of the present week. Already in this portion of the district there is much poverty and distress, which will be increased by the throwing out of employ some hundred men. Steam coals are in fair demand; house qualities are also in rather better request. Patent fuel continues dull.

Mr. H. C. Rothery, the Wreck Commissioner, will on Tuesday next, at Cardiff, hold an enquiry, ordered by the Home Secretary under the Mines Regulation Act, into the conduct of Mr. John Chubb, manager of the Dinas Colliery.

Our Swansea correspondent writes:—Trade during the past week

has been exceptionally brisk, the coal shipments having been 7000 tons in excess of the exports for the previous week. The tin-plate manufacturers of the Swansea Valley commenced a reduction of the make on the 4th inst., since which time the works have been stopped two days in the week. It is expected that this will improve prices, and there is no doubt it will do so. The recent improvement in the steel trade is fully sustained, and I hear of several orders having been advised at the Landore Steelworks of an appreciable character. The copper ore trade is quiet, and little improvement can now be hoped for till after the turn of the year. The best results are anticipated from the reduction in the tonnage rates which has just taken place at this port.

## REPORT FROM DERBYSHIRE AND YORKSHIRE.

*Nov. 14.*—No improvement has taken place in the iron trade of Derbyshire, which is even in a worse state than it was several months ago. Transactions in pig for distant districts is still but moderate, but some of the furnaces being now out stocks are necessarily kept down. As in other parts of the kingdom prices are very low, and are not likely to advance until there is a decided change for the better, and the rise general. This is not likely to be the case during the present year, for the consumption at Sheffield and some other places appears to be on the decline more than otherwise. The few mills in the county are going along very quietly, whilst the foundries are turning out less material than during the summer. At Dronfield the Bessemer works are doing very well, there having been no falling off in the activity which has prevailed during the whole of the year so far. The sharp weather which may now be said to have set in has made a good deal of difference to the coal trade, so that at late there has been a good demand for households, so that at several places prices have gone up especially for local sale. The business doing with the Metropolis has also become more active, so that the Midland Railway Company during October carried the largest tonnage during any month of 1878. Clay Cross alone sent over that line 13,600 tons, and Tibshelf nearly 8000 tons. The other lines having termini in London have also carried a larger tonnage than usual. There has, however, been very little change with respect to steam coal, which moves off slowly, whilst the local consumption has been diminished owing to the decrease in the production of pig. At the North Wingfield Colliery a pair of 25-horse power engines from the Alton Colliery are about to be put down for drawing purposes.

In Sheffield trade is actually worse than it has been, and some branches that were kept tolerably well going up to a recent period are now obliged to go on short time. The heavy departments in particular are badly off, and the consequence is that distress of a rather serious character has set in, and is likely to continue. At some of the largest establishments many of the men have not had more than an average of a couple of day's work a week for some months past, so that numbers of families are all but destitute, as they will not apply to the Poor-Law authorities. Last year a fund for the relief of the workpeople was started and liberally responded to, and from that there is a balance of about £800, which has been placed in the hands of the Mayor, and an appeal will be made to the public in the town, to the credit of which, it is said, it was agreed that no outside aid should be solicited. The various mills are far from being fully employed, with the exception of those engaged in the rolling of Bessemer rails, and they have been running very well. Crucible steel has in no way improved, but some of the makers engaged on specialities have managed to keep their workmen moderately going. In best qualities of cutlery, even the leading houses are scarcely able to keep what hands they have on full time, whilst for inferior qualities the demand is particularly quiet. In a few instances there has been a slight improvement in edge tools, implements, and other steel goods on Australian account, but the home demand is still very dull, and the failure of the Glasgow Bank is being felt by several of our manufacturers. In South Yorkshire there is more doing in house coal than for many months past, and a large tonnage is being sent to London and the South. In other qualities, however, there has been no change for the better. All the strikes have now been arranged, and the district is in a much better state than it has been since the commencement of the year.

By order of the Admiralty some interesting experiments have been made on board the Nettle gunnery ship, in Portsmouth Harbour, with an armour plate, manufactured by Messrs. Cammell, of Sheffield. They were intended to ascertain whether, if merchant ships were armed with 64-pounder guns they could be effectively used against the earlier class of men of war, and the less protected portion of those of the more modern types. The plate was 6 in. thick, and a 64-pounder charged with 10 lbs. of battery powder, and from 70 lbs. to 90 lbs. projectiles was fired at it six times, the points of impact being in immediate juxtaposition to each other. This gave a certain amount of unfairness to the test, because general experience has proved it almost impracticable to repeatedly hit a plate near the same spots while a vessel is in motion. The maximum penetration was under 5 in. up to the last shot, which, striking in the indentation of the previous one, went clean through the plate and entered the wooden backing at the rear.

## GEOLOGICAL SOCIETY OF LONDON.

*Nov. 6.*—HENRY CLIFTON BORR, F.R.S. (President), in the chair.

Arthur Goodger, Albert Academy, Burghersdorp, Cape Colony; Rev. Walter Howchin, Haltwhistle, Northumberland; Lieut.-C. A. McMahon, Hisar, Punjab; Oswald Milton Prouse, C.E., Westbourne House, Shaftesbury-road, Hammersmith; and M. G. Stuart, B.A., St. John's College, Cambridge, were elected Fellows of the Society.—Rev. W. H. Allen, F.R.A.S., Kentish Town-road; George Grey Butler, Civil Service Commission, Westminster; John Dixon, Assoc. Inst. C.E., the Chubra, Surbiton; Rev. Wm. Downes, B.A., Kentisbeare, Collumpton, Devonshire; Joseph Drew, M.D., Foxgrove-road, Beckenham; Robert Hartnoll Moore Jackman, Holly Lodge, Sidcup, Kent; Arthur Tom Metcalfe, East Retford, Nottinghamshire; E. P. Monckton, M.A., Fineshade Abbey, Northamptonshire; Albert J. Mott, Adsett Court, Westbury-on-Severn; Philip Lutley Sclater, Ph.D., F.R.S., Hanover-square; William Hobbs Shrubsole, Sheerness; and Alex. Thuey, Stevenage, Herts, of the Public Works Department, Calcutta, were proposed as Fellows of the Society.—Rev. James Compton, Buckley, via Chester; and John Dennis Paul, Leicester, will be balloted for as Fellows of the Society.

The following communications were read:—

1.—“On the range of the Mammoth in Space and Time,” by Prof. W. Boyd Dawkins, M.A., F.R.S., F.G.S.

2.—“The Mammoth in Siberia,” by H. H. Howorth, F.S.A.; communicated by J. Evans, LL.D., F.R.S., V.P.G.S.

3.—“On the Association of Dwarf Crocodiles (*Nannosuchus* and *Theriosuchus pusillus*, e.g.) with the diminutive Mammals of the Purbeck Series,” by Prof. R. Owen, C.B., F.R.S., F.G.S.

The next meeting of the society will be held on Wednesday, Nov. 20, when the following papers will be read:—1. “On the Upper Greensand Coral Fauna of Haldon, Devonshire,” by Prof. P. Martin Duncan, M.B., F.R.S., F.G.S.—2. “Notes on *Pleurodon affinis*, sp. n., Agassiz, and description of the Spine of a *Cestracion* from the Lower Coal Measures,” by J. W. Davis, F.G.S.—3. “On the Distribution of Boulders by other agencies than that of Icebergs,” by C. E. Austin, F.G.S.

THE ELECTRIC LIGHT.—Two attempts have been successfully made to use the electric light in large ironworks in the Cleveland district—at the works of Head, Wrightson, and Co., and Blair and Co., Stockton; and Bolckow, Vaughan, and Co. (Limited) are about to apply it at their large steelworks at Eston. In the latter case the system to be employed is the Siemens's dynamo-electric apparatus.

Messrs. PIXLEY and ABELL—GOLD: The arrivals since our last comprise 109,730 from India and 7000 from the Brazils; total, 116,730. There is no demand whatever for export, and the Bank has received during the week £15,000. On the other hand, £50,000 sovereigns have been taken to the Brazils.—SILVER: The market has been quiet during the week, and the price has remained without alteration at 50½d. per ounce. The arrivals have been small, only about £6,000, being reported from America. There are no shipments this week to India.

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Mr. EDWIN FEWINGS, OFFICES.

DEVEREUX BUILDINGS, 214, STRAND, LONDON, W.C.

This company has been formed to purchase, from W. H. Owen, Esq., the lease and freehold lands of the Lamorna Harbour and Granite Works; and the directors have pleasure in presenting to the public a property of a non-speculative character, in working order, and ready to make immediate profits.

The Lamorna Harbour property, situated at Lamorna Cove, on the south coast of Cornwall, about ¾ of a mile from Penzance, comprises about 20 acres of leasehold land, and also as much of the foreshore as is sufficient for the pier (which forms the breakwater) and harbour. The harbour is formed by a wharf, 194 ft. in length, and a cross jetty or pier 129 ft. in length. On this land the granite quarry has been opened and worked, and is now clear and in working order. The quarry stands another powerful crane for shipping purposes. There is on the upper platform wharf a travelling crane for loading and unloading of stone on and from the trans, wagons, or trucks. There are also several substantial stone buildings, consisting of a large blacksmith's shop, fitted with two forges in working order, a smaller one used as a store, also a powder magazine, and other buildings. The wharves and pier are well and substantially built, in ground blue lias mortar, solid throughout, and every stone of the pier within range of the sea was laid in hot hydraulic mortar and cemented with Roman or Medina cement, so as to form one solid mass, from surface to centre, equal to an original solid rock. There is also a stone built carpenter's shop, and lime and mill house, containing a revolving mill for grinding lime, driven by an overshot water wheel, equal to about 12-horse power, which may be increased, and is applicable to any purpose, such as machinery for polishing granite, or for a saw-mill or bone-mill, or any other purpose for which milling power may be required. Besides the mill house, and under the same roof, is the carpenter's shop, with a loft over, and at the back a yard capable of storing about 500 tons of coals. Above, and by the side of the stream of water which supplies power to the mill, is a small meadow of about three-fourths of an acre, capable of being used as a timber, coal, brick, and tile yard. The stream is pure and clean water, and has a never failing supply. The harbour is capable of receiving vessels of up to 80 tons burthen, and may be doubled in capacity at a very trifling expense.

The granite is of undoubted quality, and obtainable in any quantity and of any reasonable size, and is suitable for every purpose to which granite is applicable.

It has been already extensively used for lighthouse building on the Longship lighthouse—sufficient proof of its quality.

The demand for granite (especially of the Lamorna quality) is very great, and a large and profitable trade can be confidently relied on.

As proof of the quality of granite in this neighbourhood, it may be stated that on the opposite margin of the Cove there is a large granite quarry, which has been worked at a considerable profit for many years, even with the greatest disadvantage of having to send all the stone to Penzance for shipment, involving loss of time and great expense for land carriage and harbour dues, expenses from which the company will be entirely exempt. The stone from this neighbourhood has been extensively used in New Government Dock and other works.

The property has been in abeyance and the quarry unworked to any extent for a short time past owing to the death of one of the late owners, and delays (connected with the property) having occurred in winding up his estate; but the whole, with the working plant, has been carefully upheld and retained in good order and condition, and considerable sums have been very recently laid out in completing the buildings and preserving the plant, all of which are now in entire working order.

On the cliff, in a high position immediately overlooking the harbour, and within almost the same distance, stands a substantial stone-built, six roomed dwelling-house for a foreman, and about 300 yards from the sea is a capacious and handsome dwelling house, with a large room (originally intended for a Chapel of Ease or school room). This house is well and expensively built, and is capable of being utilised as (for instance) a marine telegraph station or terminus, for which, in point of both capacity and position, it is eminently adapted.

The portions thus far enumerated are leasehold for a long term, at a nominal rent, of which about 30 years are unexpired. Royalty, £6 per ton.

Besides these, there is a freehold cottage, with large garden; also about 3 to 4 acres of freehold land, bounded on one side of its whole length (nearly a quarter of a mile) by the stream of water which has been mentioned. On this land stands a new and perfectly well-built coach-house and stable, with man's room over, and adjoining (separated only by a mill leat) are 6 acres more of freehold land, of excellent quality, facing and sloping to the south-west, all of which is available either as building land or for mining purposes, the whole of the surrounding country being rich in copper and tin.

There is a large demand in the neighbourhood for agricultural manures, lime, timber, slate, bricks, drain pipes and tiles, and more than all for coal and lime. Some of the land is now procurable except by means of expensive and difficult cartage from Penzance; and the locality is eminently fitted for establishing a large factory or manufacturing premises for any of the many products of the present day—such, for example, as a paper factory—being well supplied with water power; and the advantages of the locality for any trading purposes are such as would render successful competition impossible. The freehold land is admirably suited for the erection of smelting works.

There are about 40 tons of limestone of the best quality imported from Abertillery blue limestone come from Wales in about a week.

The civil engineer's report states that there are about 200 tons of stone already quarried ready to ship in rough, or to be worked for use.

The whole has been minutely inspected and examined by Richard B. Grantham, Esq., Civil Engineer and F.G.S., No. 22, Whitehall-place, London, whose report is appended.

The following table of estimated profits has been compiled with great care, in which the profits are put at the lowest possible figure, whilst the expenses are calculated at the highest.

The cost to the company of the entire property, consisting of freehold and leasehold lands, buildings, plant, machinery, &c., with all rights and privileges £16,000, £6000 of which has been taken in full paid-up shares.

No promotion money of any kind has been or will be paid.

The only contract entered into is one for the purchase of the property, between William Henry Owen, of the one part, and George Wreford, as trustees on behalf of the company, of the other part, dated the 23rd of September, 1878. A copy of

this contract, with certificate of registration, and copies of the Memorandum of Association, plans of the property, and original report, may be seen at the offices of the company or at the solicitors.

## STATEMENT OF PROFITS

Which may be expected, and which statement is based on the actual prices paid for the stone from this quarry by the Trinity House for the Longship Lighthouse:—Dressed ashlar, at 4s. 6d. per cubic foot; scappled, 1s. 1d.; and small, 1s. 9d. per cubic foot. Of these prices one-fourth are net profit, which gives an average (omitting fractions) of 9s. 6½d. per ton.

Then, with a delivery of only 120 tons per week (which is a small computation) the result is 120 tons, at 9s. 6½d., making £57 5s., which for 52 weeks is £2977.

N.B.—This delivery might easily be trebled, for the amount of output is limited only by the labour employed.

Lime—say, 20 tons per week—at a moderate profit of 3s. per ton, is £3 per week, which for 52 weeks is 156.

Nor is the burning of lime limited to 20 tons per week, for there is abundant space for more kilns. When lime was available here it was found that the demand always exceeded the supply.

Moreover, in point of quality, nothing equal to the Aberthaw lime made at Lamorna was procurable at or even in the vicinity of Penzance, and it was in great demand.

Coals offer a prospect of delivering at least 100 tons per week, and would yield a probable profit of 5s. per ton, which for 52 weeks would be 1300. Besides there is a demand for slates, bricks, tiles, and drain-pipes, and such like things, which would, at a very moderate computation, yield a further profit of (say) 100.

Giving a total of £2533.

Deduct—Salaries, office expenses, &c. (say) 10.0

Leaves ..... £2533

(N.B.—Costs of labour and royalty of 6d. per ton have been allowed for in the calculation of above profits.)

Sufficient to pay interest on a paid-up capital of £25,000 at 12 per cent. 3000.

And leaving a surplus of £533. This moderate estimate shows a profit sufficient to pay a dividend of 12 per cent. on the entire capital, and will also allow 2 per cent. per annum to be set aside for a sinking fund.

Besides the profits above enumerated there remains the mill, available for a bone mill, a saw-mill, or for polishing granite; anyone or all of which combined must produce a further profit. There are also the freehold land and water-power, available for any factory purpose, constituting another source of profit. Furthermore, there is the possible use of the harbour by adjacent stone proprietors, which would be charged for and yield a profit.

Large orders are pending, and the facilities with which the stone can be shipped, together with the great demand for granite, fully justify the above calculations of immediate and substantial profits.

## REPORT.

## LAMORNA GRANITE QUARRY, AND HARBOUR, AND LAND, NEAR PENZANCE, CORNWALL.

22, Whitehall place, London, S.W.

DEAR SIR,—In accordance with your instructions, I very recently went from London and visited yo'r Lamorna Harbour Works and Quarry, and the lands attached thereto, and made myself acquainted with all the circumstances attending the property as far as it was necessary.

Lamorna Cove, at which the quarry and harbour are situated, is at the south-east point of the most westerly part of the coast of Cornwall, where a stream of water, having a watershed of several square miles, discharges itself into the sea.

For some little distance up from the sea the property extends along the south-west side of this stream, and above that for about a quarter of a mile, the land extends along the north-eastern side of it. The former portion is held under lease for a long term, and the latter portion is freehold, some of it being used as pasture land, a small portion cultivated, and some left rough. The sea frontage extends from the mouth of the stream at Lamorna Cove for about one-third of a mile westwards, to a point whence the boundary of the property passes over the hill northwards, and ends at a point opposite to the stream before described, about 500 yards from the harbour.

Within the area above described is contained a large mass of granite which is capable of being worked, and for which the harbour forms an excellent outlet, not only for this property but for that north of it, and for adjacent quarries, belonging to other parties, now being worked on the opposite side of the valley on the north-east of the stream before referred to, where, as well as on this property, there is an inexhaustible quantity of granite of the best description.

The Lamorna Harbour Quarry has been worked, as I was informed, for about five years, and the quality of the stone for engineering and architectural purposes is unsurpassed; in proof of which it may be stated that it has been employed in building the present Longship Lighthouse, and some from the immediate neighbourhood in the erection of the new Government Harbour Works, both at Portsmouth and Chatham, as also in construction of the Penzance Harbour and the public buildings in that town.

The harbour itself is formed by a line of quay wall, built parallel to the cliff, leading to a jetty or pier, together 323 ft. in length, and enclosing at high water a sufficient area for carrying on a considerable trade, and affording to small shipping good shelter from the Atlantic. Its area might be increased inland at a very trifling expense by removing the large beach consisting of granite boulders, which would afford material for constructing a breakwater on the eastern side of the harbour. The latter is dry at low water, but at the high tides there is sufficient water (ranging from 8 to 14 ft.) for small vessels to load alongside the jetty. The bottom is a fine sand, which is a good lying ground. It is perfectly sheltered from the west wind, and almost entirely so from the south-west, being under the projecting point of land on the western and south-western sides.

The works that have been constructed (and which are all of the most substantial description) consist of the wharf wall, and the pier or jetty in the harbour, with a fence wall on the sea side; also a higher wharf or platform, about 12 ft. above the level of the jetty. Also a lime kiln, a gantry, or travelling crane, extending almost from the quarry to the edge of the wharf wall, at which point a powerful crane, already erected, lifts the stone down to the pier, and places it on board the vessels. There are also good carpenter's and smith's shops, &c., and a water wheel attached to a mill-house, where machinery of any kind may be worked, especially for polishing or dressing granite; and there is another powerful crane in the quarry, and a considerable quantity of valuable working plant and tools.

A railway of the ordinary stone truck gauge is laid from the quarry to the gantry. On the estate has been erected a good residence, containing ten good rooms, and attached to which, and forming part of the same building, is a large room originally intended for a school-house for the children of the workpeople. There is also a good foreman's house.

The quarry has been worked for some distance into the hill, and about 30 ft. deep, and is proved to be the same fine granite that exists all over the area. The quality of the granite is a good grey kind, differing only from the Aberdeen in containing large quartz crystals. I measured some of the blocks in the rough, as they were lying about, and as they came out of the bed, and I found them weigh from 3 to 5 tons. I estimate that there are about 200 tons in the rough state ready to ship, or capable of being wrought for use before being shipped.

The price for getting out and squaring the stones is reasonable, and is the usual one paid for similar work in that country, whilst the advantages of the harbour for shipment are not possessed by any other quarry round the coast.

I understand that in consequence of the death of one of the late proprietors of the estate the operations came to a standstill, and the quarry has not been in work for about two years, but during the settlement of his affairs no deterioration has been suffered, and any depreciation in value, whilst the wharves and pier have had the great advantage of having their solidity and durability severely tested.

The granite trade was the primary and principal object of the harbour and works, but there are additional objects of very profitable traffic and trade there—e.g., lime in great request there, both for building and agricultural purposes, and can at present be procured only from Penzance, of an inferior quality, and at a price which for manuring purposes is prohibitory.

Cools in like manner are in great demand all around, and there is a market for some thousands of tons yearly, which might be supplied from Lamorna cheaper than from Penzance, by the long land carriage being saved.

Timber, slate, bricks, and tiles of all kinds, and drain-pipes are in constant request, and would doubtless form the materials for a large and profitable trade; and other granite proprietors would probably be glad to avail themselves of the harbour at a moderate charge for craneage or wharf dues.

I may add that I learnt during my visit to Cornwall to inspect this property that a new fisherman's harbour at Newlyn, at the western corner of Penzance, and that they obtained their Act of Parliament for this purpose, and are about to commence operations.

The undertaking will demand a large quantity of stone and lime, and from the great difficulties of the land carriage through Newlyn it would be of necessity that their materials must be brought by water.

In this view of the matter it would be difficult to imagine how any contractor or other party could obtain building materials more readily than or so cheaply as from your Lamorna Harbour.

Upon summing up the information which I procured in the locality, and applying it to my experience in similar cases, I am of opinion:

That the position of the harbour is favourable for shipping granite, and it is also by water for coasting vessels, and is available for the other purposes mentioned.

That the estate is capable of supplying an unlimited quantity of the best granite, and can if required be stored so as to very much increase the power now available.

That the land affords with water-power sites for factories and manure stores, and drain pipes, and other necessities, which would be imported by vessels trading for stone as back loading, and are very much wanted in that country, coals and lime being greatly in demand there, and there being no supply save by expensive land carriage.

That a tramway would afford access from the most distant part of the estate to the harbour in a cheap and expeditious manner.

That the extent and quality of the stone and the purposes for which it has already been used are the best guarantee of the market that it would command as before alluded to, and the charges would necessarily be very light, both for importing the articles mentioned above and for exporting the granite.

That with the facilities and the convenient arrangement offered by the works, until the trade was developed and markets opened in various places for the sale of stone on a large scale, as well as for supplying a traffic inwards for a large agricultural and mining population.

That the price for working and loading the stone would be light, and there is no uncertainty as to the quality and quantity of the granite; that the accommodation and facilities for carrying on a large trade exist at present, without requiring the expenditure of any large capital; and there can be no doubt that if properly worked it would be a successful undertaking, inasmuch as the position of the place and the facilities afforded by the possession of such a harbour must render any competition

RICHARD B. GRANTHAM, C.E., F.G.S.

This work has not yet commenced.

## IN LIQUIDATION.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,

AND OF THE

## LLANIDLOES LEAD MINING COMPANY (LIMITED).

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The whole of the machinery is in first rate condition, and would afford a good opportunity to an enterprising individual or a company of employing capital with more than ordinary prospects of success.

The property is open to inspection, and the leases and conditions of sale can be seen at the offices of the solicitor.

All tenders must be sent in, addressed to the Liquidators, under cover, to Mr. A. KERLY, 14, Great Winchester-street, London, on or before the 10th day of December next.

JOHN OWEN, JOHN BOWMAN, & ALEX. KERLY,

LIQUIDATORS.

ALEX. KERLY, SOLICITOR TO THE LIQUIDATOR.

Dated this 13th day of November, 1878.

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**T**HE ORDINARY ANNUAL GENERAL MEETING of the shareholders of the above company will TAKE PLACE in Paris, at the offices of the company, No. 15, Rue du Châteaudun, on SATURDAY, the 30th day of November instant, at Three o'clock P.M. precisely.

The qualification to take part in this meeting is the holding of 20 shares, which must be deposited at the office in Paris, or at the agency in London, 10 days before the meeting takes place. Shareholders may be represented by proxies at the meeting, but no one can be the bearer of a proxy unless he himself is the owner of 20 shares. Proxies must be upon French stamped paper, and according to the form which can be obtained at either of the offices of the company.

JOHN TAYLOR AND SONS.

London Agency, No. 5, Queen-street-place, E.C., 13th November, 1878.

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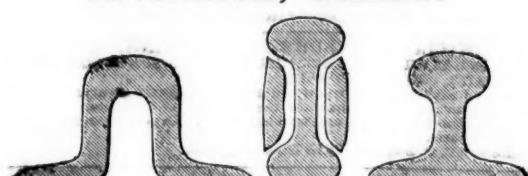
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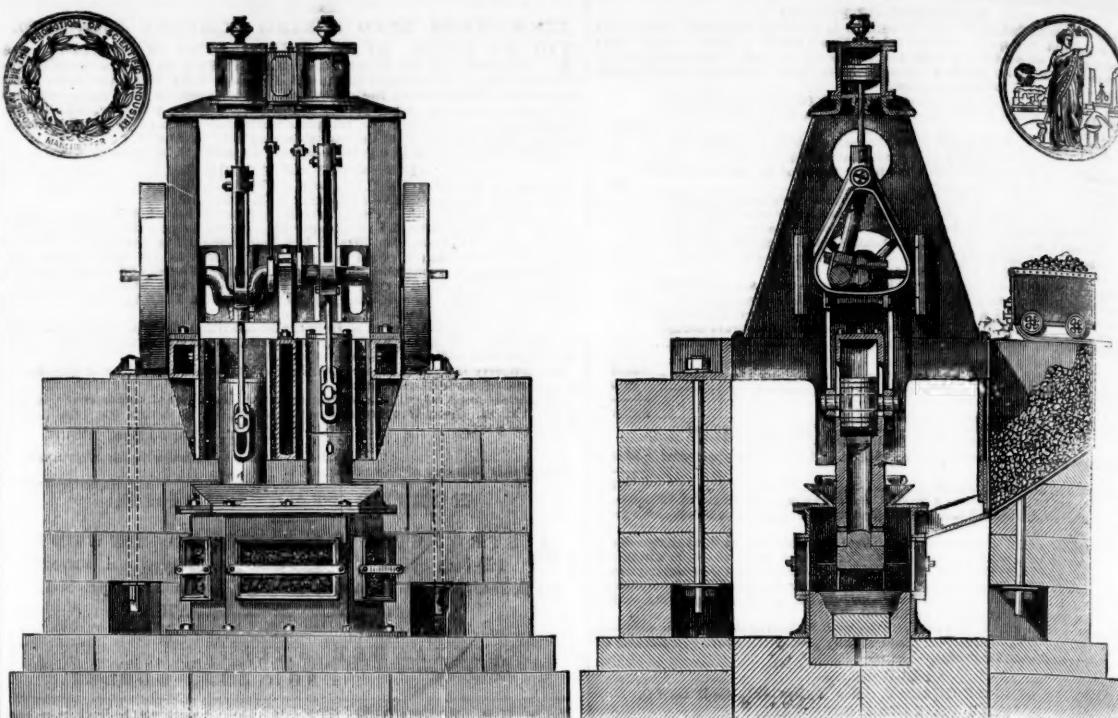
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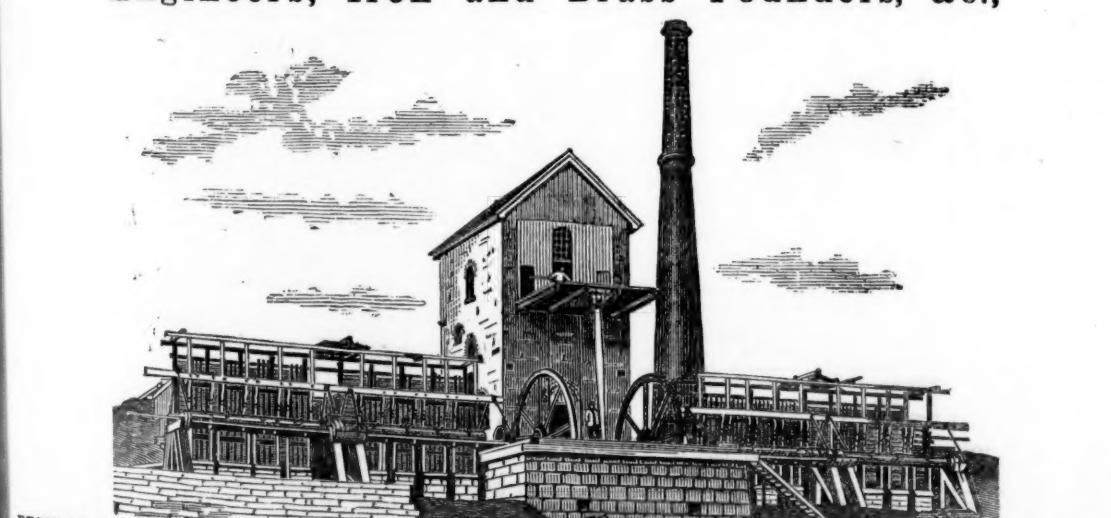
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Shares	Mines	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
4000 Brookwood, c, Buckfastleigh	1 16 0	1	1	3 1	3 16 0	0	2 0 Nov. 1878
2000 Bryn Alyn,* t, Denbigh	10 0 0	—	—	—	0 7 0	0	7 0 Jan. 1878
10000 Caron, t, Cardigan*	2 0 0	—	2 1	2 2 1	0 4 6	0	2 0 Oct. 1878
10000 Caron, t, Illogan*	55 7 5	40	35 37	308 0 0	0 1 0	0	Feb. 1878
400 Cashwell, t, Cumberland*	2 10 0	—	—	—	1 9 6	0	2 0 Aug. 1878
2450 Cook's Kitchen, t, Illogan*	25 4 9	—	3	3 34	11 17 0	0	7 6 Jan. 1878
240 Devon Gt. Consols, t, Tavistock*	1 0 0	—	1 1	3 14	116 15 0	0	5 0 July 1878
4296 Doreath, c, Camborne	10 14 10	30	28 30	112 16 2	0	5 0 Aug. 1878	
5000 East Black Crat, t, Scotland	5 0 0	—	—	—	0 10 0	0	10 0 Feb. 1878
300 East Darren, t, Cardiganshire	32 0 0	—	—	—	235 10 0	1	0 0 Aug. 1878
6400 East Pool, t, Illogan	0 9 9	9	9	9 9%	15 13 3	0	1 6 Nov. 1878
40 100 Glasgow Cars,* t [30,000 £1 p., 10,000 £1 p.]	1	—	3 1	0 18 10	0	6 0 Aug. 1878	
7500 Gorsedd and Merlin Cons., t, Flint	2 10 0	4	3 14	0 5 0	0 5 0	0	Aug. 1878
15000 Great Laxey, t, Isle of Man*	4 0 0	—	15 15	24 5 0	0 6 0	0	Oct. 1878
615 Gt. Retallack, t, Illogan*	5 18 6	—	—	—	0 1 6	0	1 6 May 1878
8400 Green Hurth, t, Durham*	0 5 0	—	—	—	1 18 0	0	3 0 Mar. 1878
20000 Grogwinion, t, Cardigan*	2 0 0	—	2 1	2 2 1	0 14 10	0	10 0 Aug. 1878
9300 Gunnislake (Clitters), t, *	8 5 0	—	1 14	1 14	0 13 9	0	1 0 Oct. 1878
8000 Holmbush, c, s-t, Callington*	1 0 0	—	—	—	0 4 6	0	0 6 Sept. 1878
2800 Isle of Man, Isle of Man*	26 0 0	—	—	—	82 5 0	0	10 0 Feb. 1878
3000 Leadhills, t, Lanarkshire	6 0 0	2	11 2	0 15 0	0 3 0	0	Mar. 1878
400 Lisburne, t, Cardiganshire	18 15 0	50	40 50	587 10 0	1	0 0 Aug. 1878	
14000 Llanidloes, t, Montgomery	3 0 0	—	—	—	0 9 0	0	4 0 Nov. 1878
9000 Marke Valley, c, Linkinhorne	5 3 6	—	3 1	3 14	7 15 0	0	2 0 Jan. 1878
10000 Mellanear Copper, Hayle*	2 0 0	—	4	3 14	0 5 0	0	3 0 July 1878
9000 Miners' Mining Co., t, Wrexham*	5 0 0	10	8 10	67 17 8	0 2 0	0	Nov. 1878
20000 Mining Co. of Ireland, c, t, *	7 0 0	—	—	—	23 17 6	0	2 0 Jan. 1878
1024 North Buoy, c, Chacewater	1 14 9	—	—	—	1 0 0	0	8 0 Oct. 1878
1029 North Hendre, t, Wales	2 10 0	—	—	—	2 7 6	0	5 0 June 1878
3000 Panty Mwyn, t, Mold (8794 iss.)	2 0 0	—	4 1	4 4	0 3 0	0	2 0 Aug. 1878
6000 Peden-an-dren Con., t, Redruth	0 8 6	—	—	—	0 9 0	0	9 0 June 1878
5000 Penhalls, t, St. Agnes	3 2 6	1	3 1	3 18 6	0 2 0	0	July 1878
6000 Pennant, t, bar, North Wales*	8 0 0	—	4 1	4 4	0 10 0	0	5 0 Mar. 1878
45793 Peatruthal, t, c, Gwennap	2 0 0	—	—	—	0 2 8	0	8 0 Nov. 1878
18000 Prince Patrick, t, Holywell	1 0 0	—	1 14	1 14	0 14 0	0	1 3 Jan. 1878
10000 Red Rock, t, Cardigan	2 0 0	—	2 1	2 2 1	0 4 0	0	2 0 Jan. 1878
12000 Roman Gravels, t, Salop*	7 10 0	—	6 6	6 6	7 15 9	0	5 0 Mar. 1878
512 South Cadron, c, St. Cleer	1 5 0	60	50 60	743 10 0	1	0 0 Sept. 1878	
6123 South Condurrow, t, c, Camborne	6 5 6	10 14	10 14	4 1 0	0 8 0	0	Aug. 1878
12000 St. Harmon, t, Montgomery	8 0 0	3	2 3	0 12 0	0	2 0 July 1878	
10000 So. Pr. Patrick, t-s-t, (8000 sh. issued)	1 0 0	—	—	—	0 7 0	0	1 0 Oct. 1878
15000 Tankerville, t, Salop*	7 12 4	—	5 1	5 16	37 5 0	0	3 0 Sept. 1878
6000 Tincroft, c, t, Pool, Illogan*	6 0 0	—	3 1	3 1	0 10 0	0	5 0 Dec. 1878
15000 Van, t, Llanidloes	4 5 0	15	16 17	23 5 6	0 5 0	0	Oct. 1878
3000 W. Chiverton, t, Perranzabuloe	12 10 0	1	1 14	55 10 0	0	10 0 Feb. 1878	
1785 West Poldice, St. Day*	11 0 0	—	—	—	1 19 0	0	4 0 July 1878
512 West Tolgus, c, Redruth	95 10 0	41	39 41	32 0 0	1	0 0 Nov. 1878	
2048 West Wheat Frances, t, Illogan*	28 15 3	2 1	2 1	3 12 6	0 4 0	0	Oct. 1878
600 West Wheat Seton, t, Camborne	47 0 0	7	6 7	446 0 0	0	15 0 Apr. 1878	
12000 West Whey Valley, t, Montgo	3 0 0	—	2 1	2 1	0 12 0	0	3 0 Nov. 1878
1024 Wh. Eliza Consols, t, St. Austell	18 0 0	—	—	—	19 10 0	1	10 0 Aug. 1878
2048 Wheal Jane, t, Kex	5 13 10	5 6	36 56	8 5 0	0 5 0	0	July 1878
4295 Wheal Kitty, t, St. Agnes	5 4 6	1 5	1 1 5	11 19 6	0 2 0	0	2 0 Dec. 1878
25300 Wh. Newton, a, c, t, Calstock*	1 0 0	—	—	—	0 8 6	0	4 0 Sept. 1878
80 Wheal Owles, t, St. Just*	173 15 0	20	15 20	522 10 0	0	4 0 Aug. 1878	
3600 Wheal Peverar, t, Redruth	7 11 0	8 6	8 6	0 10 0	0	5 0 Aug. 1878	
6000 Wheal Prussia, t, Redruth	0 5 0	5 5	5 14 54	0 4 0	0	1 0 July 1878	
10000 Wye Valley, t, Montgomery	3 0 0	—	2 1	2 1	0 10 6	0	6 0 Oct. 1878

## FOREIGN DIVIDEND MINES.

Shares	Mines	Paid.	Last Pr.	Clos. Pr.	Last Clos.	Per sh.	Last pd.
35500 Alamillos, t, Spain*	2 0 0	—	1 14	3 14	1 19 9	0	6 0 Oct. 1878
30000 Almada and Trito Consol., t*	1 0 0	—	3 14	3 14	0 6 3	0	1 0 May 1878
20000 Australian, c, South Australia*	7 7 6	—	1 14	1 14	1 1 6	0	2 0 July 1878
10000 Battle Mountain, t, (8240 part pd.)	5 0 0	—	—	—	0 10 0	0	10 0 Nov. 1878
15000 Birdseye Creek, g, California*	4 0 0	—	3 14	3 14	0 14 0	0	2 0 June 1878
90000 Cape Copper Mining, t, So. Africa	1 0 0	—	28 14	28 14	32 5 0	0	17 6 Sept. 1878
8443 Cedar Creek, g, California*	5 0 0	—	3 14	3 14	0 5 0	0	2 0 June 1878
35000 Cesena Sul. Co., Romagna, Italy*	10 0 0	—	—	—	0 18 0	0	2 0 Aug. 1878
15000 Chicago, t, Utah	10 0 0	—	1 14	3 14	2 8 0	0	4 0 Jan. 1878
65000 Colorado United, t-s-t, Colorado*	8 0 0	—	2 1	2 1	0 13 6	0	4 0 Jan. 1878
100000 Colorado, t, (20 shares)	16 15 0	—	—	—	7 11 5	0	3 0 May 1878
100000 Don Pedro North del Rey*	0 18 0	—	3 14	3 14	2 8 9	0	2 0 Mar. 1878
23500 Eberhardt & Aurora, t, Nevada*	10 0 0	—	4 1	3 14	1 8 0	0	3 0 Dec. 1878
70000 English & Australian, t, S. Aust.	2 10 0	—	1 14	1 14	2 15 9	0	1 0 Mar. 1878
80000 Flaggstaff, t, Utah	10 0 0	—	3 14	3 14	4 2 0	0	1 0 July 1878
25000 Fortune, t, Spain*	2 0 0	—	4 1	3 14	7 3 2	0	3 4 Oct. 1878
85000 Frontino & Bolivia, g, New Gran*	2 0 0	—	2 1	2 1	0 2 6	0	1 6 Sept. 1878
80000 Gold Run, Ayd.	1 0 0	—	—	—	0 2 4	0	0 4 Oct. 1878
80000 Kapunda Mining Co. Australia*	1 3 0	—	—	—	0 2 4	0	0 6 June 1878
20000 Last Chance, t, Utah	5 0 0	—	3 14	3 14	0 14 0	0	2 0 July 1878
15000 Linares, t, Spain*	3 0 0	—	4 1	4 1	17 10 4	0	2 0 Oct. 1878
55000 London and California, g*	2 0 0	—	3 14	3 14	0 1 0	0	1 0 July 1878
7877 Lusitanian, Portugal*	18 10 0	—	—	—	1 11 6	0	1 0 Mar. 1878
5000 Mamm Copper-ore of Utah, t, (6175 issued)	10 0 0	—	—	—	0 5 0	0	8 0 Dec. 1878
6000 Mountain Chief, t, Utah	10 0 0	—	—	—	0 6 0	0	8 0 Dec. 1878
10000 Pontefract, t, France	20 0 0	28	28 28	25 18 11	0 11 11	0	1 0 June 1878
10000 Port Phillip, g, Clunes*	1 0 0	—	3 14	3 14	1 1 11	0	1 0 Sept. 1878
54000 Richmond Consols, t, Nevada*	5 0 0	—	10 14	10 14	6 11 6	0	10 0 Nov. 1878
40000 Santa Barbara, g, Brazil	10 0 0	—					